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Freight on Pacific Coast Wood Pulp Reduced

Decision of U. S. Intercoastal Conference to Reduce Rate From $5.00 to $4.10 Per Net Ton May Enable Far West Producers to Compete for Michigan, Wisconsin and Ohio Markets —Given Equal Freight Rates, Pacific Coast Wood Pulp Producers Are Also Prepared to Establish Stocks At Atlantic Coast Ports

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 27, 1933—Wood pulp producers on the Pacific Coast who were all but cut out of the Michigan, Wisconsin and Ohio markets by reason of the low freight rates available to pulp imports from the Baltic will have an opportunity to again compete for this valued business the United States Intercoastal Steamship Conference having decided to reduce its freight rate on wood pulp from $5.00 per net ton to $4.10 per net ton effective February 25.

In 1932 a total of 53 small foreign steamers arrived at South Haven, Mich. with full cargoes of woodpulp for the Kalamazoo district, these vessels coming direct from the Baltic ports via the St. Lawrence and the lakes. It is estimated that these direct steamers brought about 75,000 tons of woodpulp to South Haven. In addition considerable quantities of Baltic woodpulp were unloaded at Montreal and brought by regular lake steamers to Chicago, Milwaukee, Sheboygan and South Haven while steamers arriving at New York, Boston and Baltimore contributed a substantial quota.

Atlantic Ocean Rates

Lack of cargoes westbound across the Atlantic causes the steamship lines to steadily lower their rates on woodpulp with the result that possibly not more than 5,000 tons of Pacific coast woodpulp reached paper mills in the central western states last year.

The present Atlantic ocean rate on woodpulp is $3.75 per ton which in conjunction with the rail rate from Baltimore of 24.5 cents plus two cents emergency charge enables laying foreign woodpulp down in Kalamazoo at $9.05. The ocean rate to Montreal is $4.00 to which must be added a transshipment cost of 75 cents plus a rate of $1.75 to $2.00 for the lake steamer from Montreal to South Haven while the rail freight from South Haven to Kalamazoo is $1.60 making a total of $8.10 to $8.35 on Baltic woodpulp moving through the St. Lawrence with transshipment at Montreal. The direct steamers from the Baltic to South Haven have been charging rates enabling laying down pulp in Kalamazoo at around $7.60.

The extent of foreign pulp competition on the Pacific Coast product is best evidenced by production figures of the western makers. In 1929 the Pacific coast pulp output was 370,000 tons of which from 90,000 to 100,000 tons moved to the Atlantic coast and of which amount from 70,000 to 80,000 tons moved inland. In 1932 pulp production of the Pacific coast fell to 180,000 tons. Traffic studies made in half of the Pacific coast woodpulp producers with a view of establishing competitive equality for them in the markets of the central western states indicated that both rail freight rates from the Pacific coast as well as the rate on steamers via the Panama Canal would have to be lowered.

Traffic Study Shows Problems

The traffic study showed an interesting additional problem as Pacific coast woodpulp ranges from 89 to 92 per cent air dry whereas foreign woodpulp is 99 per cent air dry the Pacific coast product having a 9 per cent moisture disability against foreign pulp.

It was also developed that given equal freight rates the Pacific coast producers are prepared to establish stocks at Atlantic coast ports so as to enable filling rush orders from interior points.

The new intercoastal freight rate will enable laying down Pacific coast pulp at Kalamazoo at $10.48 per ton when moved inland by rail from Baltimore while with a rate ranging around $3.50 on woodpulp moving from New York via barge canal and lakes it will be possible to put west coast woodpulp in Kalamazoo at a transportation cost of around $9.00.

Baltic Pulp Competition

This reduced figure is expected to provide a competitive base for Pacific pulp against Baltic pulp. One thing is certain that not so many foreign steamers will arrive with pulp at South Haven during 1933 as in 1932. The shipowners found that their costs were much higher than figured due largely to the slow rate of discharge at South Haven. Last year the foreign ships were able to pick up outbound cargoes of fuel pitch at Chicago and Toledo after discharging at South Haven whereas this year it is not likely that fuel pitch cargoes will be available. The low rates made in 1932 by the ships coming direct from the Baltic were predicated on return cargoes being available.

Demand for Paper Continues Slow In Chicago

Fine Paper Market Practically Unchanged, Although Some Distributors Report Slight Improvement—Book Paper Manufacturers Anticipate Better Conditions—Kraft Wrapping Paper Situation Little Changed—News Print Paper Listless

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 25, 1933—The Chicago paper market, depending so much upon general business conditions, is anxiously awaiting the effects, real or imaginary, of the incoming Democratic administration on business throughout the country. In the meantime, markets continue slow except for a few instances, such as in the book market, where unconfirmed reports show a renewed effort to work out a solution to many perplexing problems. Book mills have indicated that they believe the low mark passed, at least in their line, and that better conditions may be expected in 1933.

Fine paper experienced a comparatively slow week, some firms reporting only a slight improvement. On the whole, however, the situation remained practically unchanged. A slight firmness was still indicated in the kraft market, although the lack of improvement in the retail trade in this territory has definitely worked against any efforts to increase sales in an appreciable volume. The paper board industry has felt an improvement from new uses, some of this stimulus coming from the jig saw puzzle craze, paper boxes being necessary to merchandise this product. The news print market is reported as slow and virtually unchanged. The lack of definite leadership in sustained advertising efforts is counting against news print demand. Ground woods also showed no improvement during the past seven days. The waste paper market is awaiting, with some interest, the forthcoming Waste Material Dealers Convention and whatever stimulus or guidance it may have to offer this market.

Jig-Saw Craze Helps Board Mills

The paper board industry and the paper box industry is receiving a definite and very gratifying stimulus to its sales through the jig saw puzzle craze which is now sweeping the country and which the industry hopes will last forever. G. K. Browder, head of the Paperboard Industries Association, told a representative of the PAPER TRADE JOURNAL this week that the heavy board manufacturers were getting quite a bit of tonnage out of the demand for jig saw puzzles and that this, together with other new uses for paper board products, was being of decided help in carrying the industry along.

At a meeting of the National Paper Box Association, held in Chicago last week, George J. Kroeck, a former president, and now president of the western division of the association, told the usual inquiring reporters that "the jig saw puzzle might have given a headache to some people but it has proven a real boon to the members of his association." "It is one of the peculiarities of jig saw puzzles," said Mr. Kroeck, "that you require boxes to put them in. Therefore, in addition to the cardboard maker, engraver and press owner, it is a distinct help to the box maker. We got one inquiry for 75,000 boxes a day from a large printer recently and our only worry has been that we will not be able to make them fast enough." At the Congress Hotel meeting Mr. Kroeck also stated that plans were now being made for the national convention to be held at the Congress June 5 to 7 and that "if the jig saw puzzle craze kept up an attendance of around 300 manufacturers could confidently be expected."

In commenting on the popularity of jig saw puzzles and their benefits to the paperboard industry, Mr. Browder mentioned the fact that the Western Electric Company had given over some of its machines to turning out the puzzles.

Work of Paper Foundation

The Board of Governors of the Paper Foundation, Inc., met in the headquarters office in Chicago on Friday, February 24. Those in attendance were Noble Gillette; D. F. Peck; Harold R. Knott; Phil Howard; and Mr. Edmonds, representing Fred Boyce, of the American Pulp and Paper Mill Superintendent's Association. The Governors were immensely encouraged over current reports showing continued success in disposing of the problem of financing the paper exhibit at the Century of Progress Exposition. Particularly were they pleased over the way in which the individual advertising units were being taken up by everyone, ranging from rag content manufacturers to manufacturers of converted articles. These individual concerns are quick to realize the tremendous value of exhibiting for twelve hours a day, for five consecutive months, to millions of people and, in taking spaces are, of course, aiding materially in underwriting the expense of the major exhibit which will be the "piece de resistance" and which will be the product of the cooperative effort of the entire industry. Mr. Howard, managing director of the Foundation, will be in Wisconsin the greater part of the next week, completing arrangements with a number of manufacturers both for individual advertising units and for contributions to the Paper Exhibit itself.

Waste Material Convention Plans

Waste material dealers in this vicinity are carefully laying plans to make the most out of the forthcoming annual convention of the Waste Material Dealers Association which is to be held at the Hotel Sherman, Chicago, on March 13, 14 and 15. George Birkenstein, S. Birkenstein & Sons, Chicago, and president of the paper division of the national association, has been in New York City for the past week conferring with executives there as to the outline of the program. A meeting of waste material dealers was also held in Chicago last week to begin work on a tentative program.

Paper Salesmen's Association Activities

The Middle West Division of the Salesmen's Association of the Paper Industry used a part of its Monday, February 20 session, to extend congratulations to Harold Knott and Creighton Whiting for their re-election as president of the national association and division vice president respectively. Both gentlemen have done a splendid job in co-ordinating the work of the association during a very trying year and the attendance at and the interest in the weekly luncheon meetings and the special programs amply testifies to the work they are doing. Those who attended the New York meeting, and attendance was surprisingly good due, in part, to the untiring work of Jim Coy, chairman of the attendance committee, were asked, at the Monday session, to report on their impressions of the work done at the New York sessions.

The Chicago paper industry is voicing its regrets over the action of the Paper Mills Company, Inc., in announcing the voluntary liquidation of its entire assets. The liquidation will go ahead under the direction of Forrest Hopkins, long an officer of the company. It is reported that the business will be conducted and will go ahead as usual, temporarily. The announcement covering the actions of the Paper Mills Company was received with surprise by many Chicago paper men, all of whom regret exceedingly the passing of a fine paper jobbing house which has been a landmark in Chicago paper circles for many, many years.

The S. D. Warren Company has moved its Chicago offices from 175 West Jackson Boulevard to 801 South Wells street, which address is also the same as that of the Chicago Paper Company, paper jobbers. The office will continue to be in charge of George Olmsted, vice president, and E. B. Bowman.

The LaSalle Paper Company, Chicago distributors of Atlantic Bond, is participating in a contest to be carried on by the Eastern Manufacturing Company for distributors of Atlantic Bond in all parts of the country. Cash prizes amounting to $1,500 will be given out for attractive letter heads printed on Atlantic Bond and in one-color. The letter heads must be typographic, printed from type or electrotypes made from type and must be samples of actual jobs printed for customers on substance 20 or substance 24 Atlantic Bond, any color or finish. The letter heads submitted must have been printed on or before March 6.

Boston Paper Market Conditions

BOSTON, Mass., February 27, 1933—Reports in the wholesale paper market for the last week vary, but the average condition is fairly favorable. While February business has been slow with some they are looking forward hopefully to a larger volume in March. Some fine paper mills have withdrawn prices and there is talk of a possibility of an upward trend. Since the convention in New York, at which there was a general discussion of conditions, the outlook in favor of price stiffening appears more favorable. Apparently manufacturers and merchants have come to the conclusion that it is time to stop doing business at a loss, according to statements in the trade here. Among various characterizations of the fine paper market are "fits and starts," "sliding sideways," "business better this week than last," "and more orders and more inquiries." Orders for wrapping paper are being received in fair volume.

The feature of the box board market is the call for material for jig-saw puzzles and containers for the puzzles. Several New England manufacturers are exceedingly busy.

Low prices for paper stock continue in most cases, with a general dullness, except in material needed for the manufacture of jig-saw puzzles and boxes for the puzzles. White blank news, No. 1 kraft, old newspapers and corrugated boxes are all sought by the mills and are at least fairly firm. White blank news is now quotable at .85 to .95, compared with a former range of .80 to .85; No. 1 kraft has advanced to .70 to .75 from .65 to .70, and old newspapers are holding firm at their recent advance of .02½ to a range of .27½ to .32½.

Jig-Saw Craze Keeps Climax Mill Busy

LOWVILLE, N. Y., February 27, 1933—The Climax Manufacturing Company, makers of paper specialties, has embarked in the production of jig-saw puzzles, for which there is a good demand. The company is now turning out about 25,000 daily and the increasing demand for the new line has necessitated the adoption of night schedules. About 35 hands are being employed steadily on the night shift and it is possible that the force will be enlarged.

Inspect Carthage Pulp & Board Co.

CARTHAGE, N. Y., February 25, 1933.—Representatives of the Emergency Exchange Association spent the last week here investigating the methods under which the plant of the Carthage Pulp and Board Company was recently reopened as a cooperative venture by the newly organized Carthage Papermakers, Inc. Officials of the local concern reported that the entire time passed here by representatives of the organization was devoted to inspecting the machinery and inquiring into the problems encountered before starting operations. It was announced that the investigators had just returned from an inspection tour of European countries where economic conditions had been studied and the suggestion to study local methods was made by F. D. Graham, economist of Princeton University, with a view towards increasing the scope of earlier experiments.

It is understood that the Exchange Association was formed by a group of prominent manufacturers, economists, sociologists and other professional men to place into practical operation a plan to bring together the idle machines, raw materials, dwellings, farms, etc., and the unemployed men and women who are in need of products which could be produced for each other. Officials of the local company declared that the association is not planning to open any paper mills but that it intends to start several plants in New Jersey under procedures adopted in earlier experiments.

The local plant of the Carthage Papermakers, Inc., has been running for the past several weeks on day and night schedules on a full time working basis and the outlook for continuing is conceded good.

News Print Production in January

Production of news print in Canada during January, 1933, amounted to 140,539 tons and shipments to 133,056 tons, according to the News Print Service Bureau. Production in the United States was 74,444 tons and shipments 72,725 tons, making a total United States and Canadian news print production of 214,983 tons and shipments of 205,781 tons. During January, 22,207 tons of news print were made in Newfoundland and 1,408 tons in Mexico, so that the total North American production for the month amounted to 238,698 tons.

The Canadian mills produced 27,095 tons less in January, 1933, than in January, 1932, which was a decrease of 16 per cent. The output in the United States was 19,872 tons or 21 per cent less than in January 1932, in Newfoundland 1,784 tons or 7 per cent less, and in Mexico 153 tons more, making a total decrease of 48,598 tons or 17 per cent from January 1932.

Stocks of news print paper at Canadian mills are figured at 49,837 tons at the end of January and at United States mills 23,502 tons, making a combined total of 73,339 tons compared with 64,137 tons on December 31, 1932.

Bids and Awards for Government Paper

WASHINGTON, D. C., March 1, 1933—The Mathers-Lamm Paper Company has been awarded the contract for furnishing the Government Printing office with 704 sheets of 22 by 28 pink tough check board at 4.6 cents per pound, bids for which were received on February 13.

The following bids have been received by the Printing Office for 200,000 pounds of manila calendered tag board; Barton, Duer & Koch Paper Company at 6.2 cents per pound; Aetna Paper Company, 6.02 cents; R. P. Andrews Paper Company, 5.01 cents; and Perkins-Goodwin Company, 4.96 cents.

Legislature to Discuss Abitibi Power Situation

Proposed Ontario Government Measure Covers Purchase Plans In Connection With Abitibi Power Plant—Province Endeavoring to Stimulate Power Activity to Further Aid Development of Northern Section, With Its Pulp and Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 27, 1933—During the present session of the Ontario Legislature the Abitibi Power situation will be thoroughly aired, according to Conservative members. In a statement issued a few days ago aspects of a proposed Government measure for the current session covering purchase plans in connection with the power plant at Abitibi Canyon, under which municipalities in Northern Ontario will draw energy from that power plant, formerly owned by the Abitibi Power and Paper Company, on something of partnership basis with the Ontario Government. The precise nature of the co-operative aspects of the suggested legislation was not disclosed in the statement, although Premier Henry later intimated that the entire Abitibi Canyon situation would be included in a debate of the subject in the House. Rumor has it, however, that the Government proposes a definitely different plan than intended originally. The official statement states:

"The Government is endeavoring to stimulate this field of activity in order to further aid development of Northern Ontario, with its pulp and paper mills and mines, and in pursuance of this policy has already authorized the Hydro-Electric Power Commission of Ontario to construct and acquire the necessary development plants and transmission lines, and enter into contracts for additional power from the Ontario Power Service Corporation, which organization, it will be recalled, had failed to sustain its program, and the Government found it in the interests of, and of advantage to, the Province to take over these properties and hold them in the general interests of Northern development. While the Government assumes all responsibility for obligation resulting from the purchase and operation of the Ontario Power Service Corporation properties, in promoting the utilization of these properties, it is working co-operatively with the Hydro-Electric Power Commission.

F. N. Burt Co. Had Fair Year

F. N. Burt Company, Ltd., which includes paper box manufacture in its activities, and of which S. J. Moore of Toronto is president, had gross earnings of $420,315 in the year ended December 31, 1932, according to the annual report just issued. This is $1.63 per common share after full provision for depreciation, patent amortization, taxes and preferred dividends, compared with a gross of $532,-161, or $2.62 per share after all deductions, in the previous year. The company had a profit in every month of the year just closed, shareholders are told over the signature of the president. Mr. Moore also states that manufacturing and selling costs have been reduced in proportion to declines in selling prices, so that costs, apart from fixed overhead, were virtually the same in percentage for 1932 as for 1929. Balance sheet shows a strong position, with the ratio of current assets to current liabilities increased from 7 to 1 to 8 to 1. Provision for depreciation was higher than for the previous year and this reserve is now more than 50 per cent. of the book valuation of fixed assets. Cash is greater, now standing at $522,496, compared with $504,242 a year ago.

Hinde & Dauch Earns Bond Interest

Economies effected in operating costs enabled Hinde & Dauch Paper Company of Canada to show net operating profit of $205,818 in 1932, in contrast to net operating loss of $33,771 in 1931, although prices were lower in 1932 than in 1931. After provision for full depreciation of $180,-948 and bond interest and exchange of $82,141, the net loss for 1932 was $57,271, against loss in 1931 of $298,-466. Working capital position was strengthened and all bank loans were retired. Bond interest was earned 2.5 times before depreciation. Sidney Frohman, president of the company, states that any return of volume would result in profitable operations at prices not higher than those of 1932.

Notes and Jottings of the Trade

For many years a member of the staff of the Department of Lands and Forests of Ontario, W. H. Hawkins, stationed at Kapuskasing, Ont., was killed by a train. The late Mr. Hawkins had recently been appointed supervisor of the land settlement relief scheme for the Kapuskasing district.

Many connected with the Ontario paper trade attended a banquet at Thorold, Ont., when the chief speaker was Col. Robert Rutherford McCormack, one of the owners of the Ontario Paper Company, and the *Chicago Tribune*.

T. M. Barry, formerly assistant general superintendent of Fraser Paper, Ltd., Madawaska, Maine, and Donald A. Fraser, formerly head of the Standards Department, Edmunston, N. B., have been appointed to the position of assistants to the president of Fraser Companies, Ltd., headquarters at Edmunston, N. B.

Samuel Richmond Hart, 84, president of S. R. Hart & Co., Ltd., manufacturing stationers, Toronto, and one of the best known men in the Canadian paper trade, died suddenly from stroke.

Provincial Paper, Ltd., University Avenue, Toronto, have sent out very attractive samples of their Multifold Enamel which contains cuts illustrating the fine printing qualities of the paper.

S. R. Armstrong, of the Great Lakes Paper Company, at Fort William, Ont., has just returned to Toronto after some time spent at the mills. Mr. Armstrong, who has his office in Toronto, states that good progress is being made on the construction of a warehouse for water shipments. The warehouse will have a capacity of 2,000 tons of news print and will be ready for the opening of navigation.

James Thompson, of the Thompson & Heyland Lumber Company, Toronto, pulpwood contractors, recently left on a motor trip to Florida.

The tender of Thomas Falls, Port Arthor, for a timber limit in Devon Township was recently accepted by the Department of Lands and Forests of Ontario. The limit comprises six and a quarter miles and contains about 10,000 cords of pulpwood. Cutting on the limits has been started.

Wholesale Paper and Pulp Price Index

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 1, 1933—January wholesale price index number for paper and pulp was 72 compared with 73 for December and 78 for January of last year taking 1926 at 100 according to the Bureau of Labor Statistics, Department of Labor.

Canadian Bleached Sulphite Exports Expand

Volume Shipped Abroad During January Amounted to 365,974 Cwt's, Valued at $911,125, Compared With 279,026 Cwt's, Valued at $728,162, In December—Exports of Pulp and Paper for January Show Decrease Compared With January Last Year

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 27, 1933—The Dominion Bureau of Statistics return of the exports of pulp and paper for January, show that the total amounted to $5,422,787, as compared with $5,952,205 in January, 1932. A noteworthy feature, however, was that whereas exports of pulp showed a reduction in tonnage as compared with the exports in the previous month, there was an increase in value. This was brought about by the the fact that a large proportion of bleached sulphite was exported, the total for January being 365,974 cwt., valued at $911,125, as compared with 279,026 cwt., valued at $728,162 in December.

January exports of news print totalled 2,555,585 cwt., valued at $5,204,445, compared with 2,739,866 cwt., valued at $5,666,412 in December, and 3,458,273 cwt., valued at $8,661,086 in January, 1932.

Total export of wood pulp and screenings for January was 714,157 cwt., with a value of $1,457,306, which compares with 734,048 cwt., valued at $1,365,254 in December. The January, 1932, export was 793,340 cwt., valued at $1,829,911.

The bleached sulphite classification in pulp exports increased to 365,974 cwt., valued at $911,125, comparing with exports of 279,026 cwt., at $728,162 in December of last year.

Following are the exports for the month of January compared with those of the preceding month and the corresponding month of last year:

Paper	Jan. 1933. $	Dec. 1932. $	Jan. 1932. $
News print	5,204,445	5,666,412	8,661,086
Others	218,342	285,793	296,280
Total	5,422,787	5,952,205	8,957,366
Pulp—			
Sulphate	167.343	179.736	67,904
Sulphite (bl.)	911,125	728,162	1,214,222
Sulphite (unbl.)	190,793	211,989	344,669
Mechanical	182,623	235,066	185,168
Screenings	1,836	5,444	5,122
N. O. P.	3,586	4,757	12,826
Total	1,457,306	1,365,254	1,829,911
Tl. P. & P.	6,880,093	7,317,459	10,787,277

Last month's exports were distributed as follows:

	Paper. $	Pulp. $	Total. $
U. S. A.	4,591,136	1,154,491	5,745,627
U. Kingdom	140,819	27,060	167,879
Others	690,832	275,755	966,587
Total	5,422,787	1,457,306	6,880,093

For the 12 months ending January, 1933, the total exports of paper and pulp were valued at $82,788,960, as compared with $111,092,648 for the 12 months ending January, 1932.

Fraser Companies' Reorganization

Holders of securities of Fraser Companies, Ltd., and its subsidiary, Restigouche Company, Ltd., have been notified that the plan of reorganization of these companies is now in effect. Notice is also given that holders of the bonds, debentures, notes and share certificates must surrender their securities to the Montreal Trust Company for the purpose of obtaining, in exchange therefore, delivery of the new securities to which they are entitled under the reorganization plan. Exchange will be effected on the following basis:

(1)—Holders of first mortgage bonds of Fraser Companies to receive new mortgage bonds at par for par.

(2)—Holders of three-year collateral trust notes of Fraser Companies to receive (a) payment in cash of interest for January, 1932, on notes surrendered and (b) delivery, par for par, of mortgage bonds of Restigouche Company.

(3)—Holders of debentures of Fraser Companies to receive voting trust certificates representing common shares at the rate of two such shares for each $100 principal amount of debentures.

(4)—Holders of three-year unsecured notes of Fraser Companies to receive voting trust certificates representing common shares at the rate of two such shares for each $100 principal amount of notes.

(5)—Holders of common stock of Fraser Companies to receive new common shares at the rate of one such share for each 20 shares surrendered.

(6)—Holders of first mortgage bonds of Restigouche Company to receive new mortgage bonds at par for par.

Position of Price Bros. Co.

The Bondholders' Protective Committee of Price Brothers Co., Ltd., have issued a letter to bondholders stating that there has been a net loss, after bond and bank interest, etc., but before depreciation or depletion, of $876,345 for the ten months ended December 31, 1932. It is further stated that over 47 per cent of the outstanding bonds have now been deposited, or their deposit assured, and that as soon as satisfactory support of the bondholders is obtained by the deposit of bonds, the committee will take any action that appears necessary to protect the interest of the bondholders. It is added that in an effort to reduce the losses the mill at Riverbend has been shut down and production concentrated at the Kenogami mill.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 27, 1933—Boston distributors of Atlantic Bond are making extensive preparations for the prize contest for letter heads in which $1,500 will be distributed.

Knight, Allen & Clark, Inc., is sending out to the trade new Martin-Cantine sample books. A sales meeting was held at the office of this company Saturday morning, at which Mr. Tatum of the Martin-Cantine Company addressed the staff.

Robert Treadwell, who has had experience in the paper industry a great many years, has become associated with Knight, Allen & Clark, Inc., as salesman.

John Carter & Co., Inc., has recently issued new terms of sale, establishing credit conditions on a standard basis.

Arthur C. Hall, treasurer of John Carter & Co., Inc., is at the Peter Bent Brigham Hospital recovering from a major operation. Reports of his condition are encouraging.

Robert E. McManus, who covers the New England territory for the Fort Hill Paper Company, had the misfortune to slip on an unshovelled path not far from his house, Jamaica Plain, injuring himself so that he is temporarily obliged to use crutches.

The next meeting of the New England Paper Merchants Association is to be held at the Hotel Touraine, March 9.

Philadelphia Paper Market Shows Firmer Tone

Action of Mills In Withdrawing Quotations On Book Papers, Including Coated and Uncoated, and Sulphite Bonds, Unanimously Approved by Distributors — Upward Revision of Prices Anticipated Shortly—Jobbers Stocks Not Excessive

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 27, 1933.—Telegraphic notice of withdrawal of prices on book papers, chiefly both coated and uncoated stock, and on sulphite bonds, received by a number of distributors at the close of the week, brought from them to your correspondent unanimous approval. All were in accord that this action on the part of the mills would have a most beneficial effect in stabilizing conditions in a market which admittedly is in, or certainly is on the verge of, complete demoralization. All those concerned, of course, interpreted the withdrawal of prices as indicating an upward revision, although most of those with whom the subject was discussed were of the opinion that, because of present economic conditions, it would not be marked, and, of course, all were in unison in their desire to be informed just what the mill attitude would be. Whatever differences of opinion were expressed in a discussion of a development in which the trade rejoices and in which many see a movement of benefit not alone to distributors, but to their chief customers—the printers, were solely on the question of the permanence of a firmer price basis.

So often in the last three years has the trade looked on recurrent developments as indicative of a permanent benefit, and so often have these hopes been dissipated that the more conservative in the trade are not inclined to become jubilant overnight. In other words, some doubt is expressed whether the prospective advance as foreshadowed by the telegraphic withdrawals was a temporary expedient or whether it could be counted on as a permanency.

On the one hand is the fact that there was not visible to those interviewed any general economic condition which would compel a stiffening of prices at this time. But there was almost universal opinion that competition has in recent months become so fierce that business could not be conducted with any proper margin of profit. The result of this price warfare merely to secure orders, irrespective of profit, has been most harmful to printers—chief consumers of book papers and lower priced bonds—as well as to the trade. Because of the unlimited lines of credit given some time ago, although now quite well checked, many small printers were able to underbid the substantial members of the craft, and thereby to force them, not for the sake of making a profit, but solely to retain their trade, likewise to make cuts. The end result was that all found themselves working without profit; but another result also definite was a very heavy death rate among those who forced this unfair competition with mourning on the part of those who were so free in their credits.

Credit Situation Improves

As recounted in recent issues of the PAPER TRADE JOURNAL the credit situation has been much improved through the close cooperation of the paper trade and the Typothetae, but there still exists abundant opportunity for further betterment. That story in these columns has evoked considerable interest even beyond Philadelphia, and during the week at least two mill representatives visiting the city had with them clippings from the PAPER TRADE JOURNAL, for discussion with their customers. But while the credit situation is vastly improved over what it was but a few months ago, continuous lowering of prices has had a most unsettling effect. Even though the advance is but slight it will be interpreted as meaning the end of the price cutting which has been in existence, and, furthermore, will probably stimulate buying.

With falling prices it has been diffcult to sell papers in larger quantities than for absolutely immediate needs. With price stabilized and showing a tendency to advance, opportunity to sell is also greatly advanced. A tour of the trade fails to find any of the jobbers in possession of large amounts of papers involved in this recent price withdrawal by the mills with a possible exception of one large establishment, which was able to load up a considerable amount of stock not by direct shipment from the mill but through an indirect channel. It is understood, however, that this house will not take advantage of a situation so fortunate for itself. Because of the critical conditions in which both printers and paper distributors find themselves, sentiment is rapidly crystallizing in favor of a determined movement to improve conditions, and this is quite certain to result in the near future in the adoption of a definite program.

Outlook for Paper Stock

Paper stock dealers still are hopeful that what they believe is a very heavily increased output of news boards to supply the picture puzzle demand will result in improved mill quotations for themselves, but thus far these have not been in evidence. Advance of 50 cents a ton in newspapers, reported from New York, has not had a corresponding reflex in this city. While it is a fact that mills not hitherto active in the market have during the past week made inquiries, none of them have offered the slightest inducement by way of better prices and consequently business remains virtually as it was with dealers almost indifferent as to orders, because they say none of these can be handled with substantial profit, and most of them with a loss. Fortunately, there is not accumulating any large amount of stock, and dealers generally are not compelled to unload.

News of the Trade

The Paper House of Pennsylvania is now completely and comfortably installed at 28 North Sixth street, in its own building occupied for many years until a few years back, but removed to 32 North Sixth Street immediately adjoining the new old offices which really are much better adapted for the purpose of the Paper House than the former location.

The Paper Trade Association of Philadelphia will meet on March 8 at Dufor's, at which time the delegates whom the association appointed to the national meeting in New York will make their reports.

The Paper and Bag Institute of Philadelphia will meet on Wednesday of this week for the purpose of adopting final plans for an annual banquet. Members of the Institute report a decided improvement in demand for glassine papers in order to supply picture puzzle producers.

B. Dietrich has been added to the local sales force of the Charles Beck Company.

President H. A. Jacobs, of the Franklin Paper Company, is back at his desk after an illness of two weeks.

The Pulp and Paper Puzzle *

By Thomas J. Burke[1]

Any student of Federal Government Income Tax returns made by Corporations manufacturing pulp or paper or products made therefrom or any combination of them, must be puzzled by the ability of at least a third of these corporations to report deficits year after year and still remain in business.

"What Price Prosperity"

At the end of 1930, a pamphlet entitled "What Price Prosperity in the Pulp and Paper Industry" received very favorable comment from a number of executives, and I have recently received a number of requests to bring up-to-date as far as data are available, the information contained in that pamphlet.

Since then the 1929 and 1930 figures for the industry have been published and a little information regarding 1931. This has been simplified and re-arranged in the following Tables, all of which apply only to corporations manufacturing Pulp, Paper or Products therefrom.

TABLE A

Year	Total Active Corporations Reporting (100 per cent)	Corporations Reporting Profits		Corporations Reporting Losses	
		No.	Per cent	No.	Per cent
1926	2024	1365	67.44	659	32.56
1927	2028	1386	68.35	642	31.65
1928	2019	1345	66.62	674	33.38
1929	2079	1406	67.62	673	32.38
1930	2067	1114	53.89	953	46.11
1931	1946*	815	41.87	1131	58.13

* Returns filed to August 31, 1932.

It will be noted that the Corporations reporting profits decreased approximately 14 per cent from 1929 to 1930 and another 12 per cent from 1930 to 1931, so that in 1931, about 42 per cent made a profit and 58 per cent reported losses.

The manufacturing corporations in other industries, it is true, do not show to any better advantage than our own. In fact, until 1929, we headed the list in that our percentage of corporations showing a profit was higher than in any other industry but in 1930 the group including Food Products, Beverages and Tobacco took first place and considerably improved its margin of superiority in the following year 1931 as Table "B" shows:

TABLE B
Per cent of Corporations Reporting Profits

Group	1927 Per cent	1928 Per cent	1929 Per cent	1930 Per cent	1931 Per cent
Food Products, Beverages & Tobacco	59.47	58.96	59.69	53.06	45.08
Textile & Textile Products	59.49	55.67	55.40	38.65	34.00
Leather & Leather Products	60.06	55.82	54.46	36.33	33.70
Rubber & Related Products	51.14	48.27	48.75	37.40	32.21
Lumber & Wood Products.	53.45	53.98	53.31	31.20	22.17
Paper, Pulp & Products	66.54	64.26	64.55	52.72	40.72
Printing & Publishing	63.06	63.54	63.37	51.96	39.48
Chemicals & Allied Substances	54.78	56.41	54.27	44.54	39.14
Stone, Clay & Glass Prod.	55.25	55.15	53.40	38.21	26.36
Metal & Metal Products	56.00	59.20	61.12	39.31	24.43
All Other Mfg. Industries	50.68	50.36	48.31	37.41	26.69

It would be interesting to know how far the pulp and paper corporations contributed to the success of the food etc, corporations in improving their relative standing by supplying them with products at below-cost levels.

Profit-Making Corporations

The following is an analysis of the Income Statement of profit-making corporations for 1927, 1928, 1929 and 1930 (1931 figures not available). The average total profits from operations for these years were as follows:

1927	1928	1929	1930
5.78%	7.15%	5.85%	6.14%

It is obvious the falling off was not in the rate or per cent of "profits from operations", but in the number of corporations that were able to make the profit. As shown

CORPORATIONS MANUFACTURING PULP, PAPER AND PRODUCTS, THAT REPORTED NET INCOME IN 1927, 1928, 1929 AND 1930

TABLE "C"
ANALYSIS OF INCOME STATEMENTS
(In Thousands of Dollars)

	1927		1928		1929		1930	
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
Gross Sales	$1,341,846	100.00	$1,337,345	100.00	$1,482,142	100.00	$990,720	100.00
Cost of Goods Sold	979,709	73.01	969,681	72.52	1,077,722	72.71	708,248	71.50
GROSS PROFITS FROM SALES	362,137	26.99	367,664	27.48	404,420	27.29	282,472	28.50
Miscellaneous Deductions	204,304	15.22	163,350	12.23	188,165	12.69	130,788	13.20
Depreciation	46,773	3.48	46,043	3.46	53,085	3.58	40,003	4.03
Compensation of Officers	.....	.....	29,234	2.20	31,796	2.14	24,582	2.48
Interest Paid	19,621	1.49	17,727	1.32	26,290	1.78	11,432	1.16
Taxes (excluding Federal Income)	14,894	1.11	15,113	1.16	17,817	1.20	12,279	1.24
Bad Debts	3,231	.24	3,045	.23	3,604	.24	2,697	.27
Depletion	1,338	.09	1,414	.08	1,792	.13	1,358	.14
TOTAL DEDUCTIONS	290,161	21.63	275,926	20.68	322,549	21.76	223,139	22.52
NET PROFITS FROM SALES	71,976	5.36	91,738	6.80	81,871	5.53	59,333	5.98
Other Profits from Operations	5,707	.42	4,744	.35	4,879	.32	1,516	.16
TOTAL PROFITS FROM OPERATIONS	77,683	5.78	96,482	7.15	86,750	5.85	60,849	6.14
Miscellaneous Receipts	39,273	2.93	14,453	1.08	22,215	1.50	8,263	.84
Interest Received	7,032	.52	7,654	.57	15,382	1.04	4,528	.46
Dividends Received	7,921	.59	10,525	.79	22,054	1.48	5,195	.52
Bond Interest Received	1,585	.12	1,547	.12	1,786	.12	1,567	.15
Total Income from Other Sources	55,811	4.16	34,179	2.56	61,437	4.14	19,553	1.97
TOTAL NET INCOME BEFORE DEDUCTING FEDERAL INCOME TAX	133,494	9.94	130,661	9.71	148,187	9.99	80,402	8.11
Federal Income Tax	16,063	1.19	13,768	.98	13,222	.89	8,475	.86
NET INCOME AVAILABLE FOR DIVIDENDS	117,431	8.75	116,893	8.73	134,965	9.10	71,927	7.25
Cash Dividends Paid	58,710	4.37	68,331	5.11	77,127	5.20	58,951	5.94
Stock Dividends Paid	9,705	.72	11,958	.89	1,515	.10	11,550	1.16
Total Dividends Paid	68,415	5.09	80,289	6.00	78,642	5.30	70,501	7.10
No. Corporations Reporting	1,386	....	1,345	....	1,406	....	1,114	....
Per cent of Corporations Reporting	68.34%	....	66.48%	....	67.62%	....	53.89%	....

* Delivered before the Sulphite Institute, Paper Week, Hotel Pennsylvania, New York, Feb. 14th, 1933.

[1] Secretary, The Sulphite Institute.

in Table "A" above, there was a drop from approximately 1400 to 1100 or about 14 per cent in this number.

Annual Percent Changes in Sales Volume and Profits

Taking 1927 as 100 per cent the volumes of Gross Sales reported by the profit-making corporations for the four years were as follows:

Year	Gross Sales (Thousands of Dollars)	Per Cent
1927	$1,341,846	100.00
1928	1,337,345	99.66
1929	1,482,142	110.45
1930	990,720	73.83

Thus, the decrease in the "dollar" volume of sales from 1929 to 1930 was 36.62 per cent, although the decrease in the number of profit-making corporations was only about 14 per cent. The significant fact is, that in spite of this falling off in volume, the corporations manufacturing Pulp, Paper and Products therefrom *that did make a profit in 1930 did better than the average in 1929, for the average net profits from sales in 1930 was 5.98 per cent, while in 1929 it was only 5.53 per cent, an incerase of .45 per cent in 1930.*

The necessity for the concentration of executive attention on "Net profits" rather than "sales volume" is thus forcibly driven home for the corporations that made this better showing in 1930 must certainly have concentrated on that portion of their business that was still profitable.

Changing Items Included in "Cost of Goods Sold"

By including the following items in "Cost of Goods Sold" the Gross Profit from sales is decreased to exactly 20 per cent in 1929 and 20.34 per cent in 1930, as follows:

EXTRA ITEMS INCLUDED IN "COST OF GOODS SOLD"
(In Thousands of Dollars)

	1929		1930	
	Amount	Per Cent Gross Sales	Amount	Per Cent Gross Sales
Depreciation	$53,085	3.58	$40,003	4.03
Compensation of Officers	31,796	2.14	24,581	2.48
Taxes (excluding Federal Income Tax)	17,817	1.20	12,279	1.24
Bad Debts	3,604	.24	2,697	.27
Depletion	1,792	.13	1,359	.14
	$108,094	7.29	$80,919	8.16
Gross Sales	$1,482,142	100.00	$990,720	100.00

TABLE "D"
(In Thousands of Dollars)

	1929		1930	
	Amount	Per Cent Gross Sales	Amount	Per Cent Gross Sales
Gross Sales	$1,482,142	100.00	$990,720	100.00
Cost of Goods Sold	1,185,816	80.00	789,167	79.66
Gross Profits from Sales	$296,326	20.00	$201,553	20.34
Miscellaneous Deductions	$188,165	12.70	$130,789	13.21
Interest Paid	26,290	1.78	11,431	1.15
TOTAL DEDUCTIONS	$214,455	14.48	$142,220	14.36
NET PROFIT FROM SALES (as in Table "C")	$81,871	5.52	$59,333	5.98

Loss-Making Corporations

Table "E" is an Analysis of Income Statements of Corporations manufacturing and converting Pulp, Paper and Products, that reported Losses during 1927, 1928, 1929 and 1930.

It will be noted that the net *losses* from sales were as follows:

1927	1928	1929	1930
9.98%	10.79%	10.33%	12.67%

Through "Income from Other Sources" and "Profits from Other Operations" (not included in Goods Sold), these losses were reduced to:

1927	1928	1929	1930
4.77%	2.95%	7.99%	3.41%

It is significant that at the end of 1929 the "Income from Other Sources" dropped 5 per cent approximately, viz., from 7.19 per cent in 1928 to 2 per cent in 1929, which accounted for the increase in total net losses from 2.95 per cent to 7.99 per cent. All these percentages are based on Gross Sales as 100 per cent.

Comparison for Year 1930

A comparison of income and expense items expressed as percentages of Gross Sales of the profit-making and loss-making corporations for 1930, the latest year for which data are available, brings out some highly significant facts.

In Table "F" below, the percentages of the profit-making corporations are arranged in Col. "A", those for the loss-making corporations in Col. "B" and the differences

CORPORATIONS MANUFACTURING PULP, PAPER AND PRODUCTS THAT REPORTED LOSSES IN 1927, 1928, 1929 AND 1930

TABLE "E" — ANALYSIS OF INCOME STATEMENTS
(In Thousands of Dollars)

	1927		1928		1929		1930	
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
Gross Sales	$254,435	100.00	$327,227	100.00	$243,779	100.00	$518,783	100.00
Cost of Goods Sold	213,541	83.93	264,433	80.80	204,137	83.70	422,525	81.45
GROSS PROFIT FROM SALES	40,894	16.07	62,794	19.20	39,642	16.30	96,258	18.55
Miscellaneous Deductions	41,937	16.48	49,954	15.27	37,778	15.51	82,993	16.00
Depreciation	9,888	3.89	16,648	5.09	9,527	3.92	24,240	4.68
Compensation of Officers	.....	.....	6,603	2.02	6,047	2.51	12,054	2.32
Interest Paid	9,929	3.90	18,441	5.64	7,082	2.90	31,028	5.99
Taxes (excluding Federal Income)	3,355	1.32	4,201	1.28	3,048	1.25	8,088	1.55
Bad Debts	1,026	.40	1,368	.42	1,021	.41	2,619	.50
Depletion	154	.06	862	.27	326	.13	984	.18
TOTAL DEDUCTIONS	66,289	26.05	98,077	29.99	64,829	26.63	162,006	31.22
NET LOSSES FROM SALES	25,395	9.98	35,283	10.79	25,187	10.33	65,748	12.67
Profits from Other Operations	1,155	.45	2,129	.65	812	.34	3,723	.72
TOTAL LOSSES FROM OPERATIONS	24,240	9.53	33,154	10.14	24,375	9.99	62,025	11.95
Miscellaneous Receipts	3,274	1.29	7,760	2.38	2,603	1.06	4,302	.82
Interest Received	7,352	2.89	10,435	3.19	1,879	.77	21,343	4.12
Dividends Received	1,383	.54	5,244	1.60	372	.16	18,532	3.58
Bond Interest Received	105	.04	76	.02	29	.01	136	.02
TOTAL INCOME FROM OTHER SOURCES	12,114	4.76	23,515	7.19	4,883	2.00	44,313	8.54
TOTAL NET LOSSES	12,126	4.77	9,639	2.95	19,492	7.99	17,712	3.41
Cash Dividends Paid	7,155	2.81	12,412	3.80	2,420	.99	16,367	3.15
Stock Dividends Paid	224	.09	14	....	90	.03	523	.10
Total Dividends Paid	7,379	2.90	12,426	3.80	2,510	1.02	16,890	3.25
No. of Corporations Reporting Losses	642	.....	678	....	673	....	953	....
Per cent of Corporations Reporting	31.66%	....	33.52%	....	32.38%	....	46.11%	....

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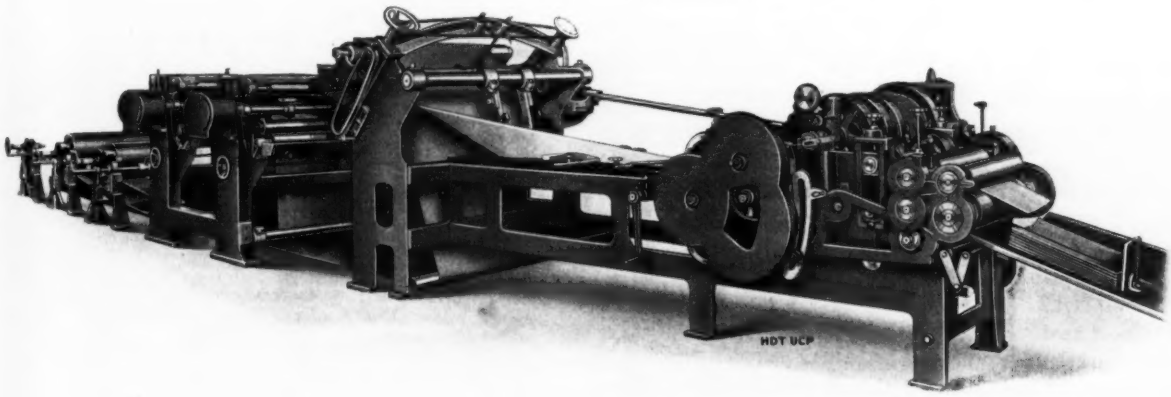

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673

in Col. "C". Where Col. "B" is smaller than Col. "A", a minus sign is placed before the difference in Col. "C".

TABLE "F"

	Col. "A" Per Cent	Col. "B" Per Cent	Col. "C" Per Cent
Gross Sales Less Returns, etc.	100.00	100.00	.....
Cost of Goods Sold	71.50	81.45	9.95
GROSS PROFITS FROM SALES	28.50	18.55	— 9.95
Miscellaneous Deductions	13.20	16.00	2.80
Depreciation	4.03	4.68	.65
Compensation of Officers	2.48	2.32	— .16
Interest Paid	1.16	5.99	4.83
Taxes (excluding Federal Income Taxes)	1.24	1.55	.31
Bad Debts	.27	.50	.23
Depletion	.14	.18	.04
TOTAL DEDUCTIONS	22.52	31.22	8.70
NET PROFITS FROM SALES	5.98	....	....
NET LOSSES FROM SALES	....	12.67	....
Profits from Other Operations	.16	.72	.56
TOTAL PROFITS FROM OPERATIONS	6.14	....	....
TOTAL LOSSES FROM OPERATIONS	....	11.95	....
Miscellaneous Receipts	.84	.82	— .02
Interest Received	.46	4.12	3.66
Dividends Received	.52	3.58	3.06
Bond Interest Received	.15	.02	— .13
TOTAL INCOME FROM OTHER SOURCES	1.97	8.54	6.57
TOTAL NET INCOME	8.11	....	....
TOTAL NET LOSSES	....	3.41	....

The loss-making corporations made about 10 per cent less Gross Profit than the successful corporations, but the following summary epitomizes the principal differences and explains the total difference in the final result of (8.11+3.41) 11.52 per cent.

The loss-making corporations had:—

	Per Cent
Less Gross Profit	10.00
More Miscellaneous Deductions	3.00
More Interest	5.00
	18.00
More Income from Other Sources	6.50
NET DIFFERENCE	11.50

Increasing "Cost of Goods Sold"

Rearranging the analysis of income statement of loss-making corporations for 1929 and 1930, (as was done in the case of the profit-making corporations above), changes their figures as is shown in Table "G" below:

TABLE "G"

(In Thousands of Dollars)

	1929 Amount	1929 Per Cent	1930 Amount	1930 Per Cent
Gross Sales	$243,779	100.00	$518,783	100.00
Cost Goods Sold	224,106	91.92	470,510	90.68
GROSS PROFITS FROM SALES	$ 19,673	8.08	$ 48,273	9.32
Miscellaneous Deductions	37,778	15.51	82,993	16.00
Interest Paid	7,082	2.90	31,028	5.99
Total Deductions	44,860	18.41	114,021	21.99
NET LOSSES FROM SALES (as per Table "E")	$ 25,187	10.33	$ 65,748	12.67

Percentages for 1930 Compared on Re-Arranged Basis

Table "H" is a similar comparison as was made in Table "F", except that depreciation, compensation of officers, taxes (except Federal Income), bad debts and depletion have been included in Cost of Goods Sold. Col. "A", as before represents profit-making corporations average percentages expressed in terms of Gross Sales and Col. "B" those for the loss-making corporations, while Col. "C" represents the differences between Col. "A" and Col. "B".

TABLE "H"

	1930 Col. "A" Per Cent	1930 Col. "B" Per Cent	Col. "C" Per Cent
Gross Sales	100.00	100.00	....
Cost of Goods Sold	79.66	90.68	11.02
GROSS PROFITS FROM SALES	20.34	9.32	—11.02
Miscellaneous Deductions	13.21	16.00	2.79
Interest Paid	1.15	5.99	4.84
TOTAL DEDUCTIONS	14.36	21.99	7.63
NET PROFITS FROM SALES	5.98	....	....
NET LOSSES FROM SALES	....	12.67	....
NO. OF CORPORATIONS REPORTING	1,114	953	
Average Gross Sales per Corporation	$889,335	$545,428	

CORPORATIONS MANUFACTURING PULP, PAPER AND PRODUCTS

STATEMENT OF ASSETS AND LIABILITIES
(In Thousands of Dollars)

TABLE "I"

ASSETS	Profit-Making Corporations 1929 Amount	1929 Per cent	1930 Amount	1930 Per cent	Loss-Making Corporations 1929 Amount	1929 Per cent	1930 Amount	1930 Per cent
Cash	$87,298	3.97	$65,335	4.67	$8,524	2.25	$21,625	1.91
Notes & Accts. Receivable	278,742	12.70	132,533	9.49	42,444	11.21	120,608	10.71
Inventories	273,653	12.49	196,779	14.08	48,371	12.79	112,829	10.02
Tax-Exempt Investments	40,374	1.85	40,237	2.87	1,023	0.27	3,849	0.34
TOTAL CURRENT ASSETS	680,067	31.01	$434,884	31.11	$100,362	26.52	$258,911	22.98
FIXED ASSETS (Less Depreciation)	1,026,911	46.79	$723,077	51.74	$197,642	52.19	$517,896	45.96
Miscellaneous Assets	487,308	22.20	239,780	17.15	80,586	21.29	349,991	31.06
TOTAL ASSETS	$2,194,286	100.00	$1,397,741	100.00	$378,590	100.00	$1,126,798	100.00
LIABILITIES								
Notes and Accts. Payable	$124,535	5.67	$90,734	6.50	$71,981	19.02	$137,468	12.20
Miscellaneous Liabilities	214,416	9.77	61,223	4.37	27,258	7.19	48,565	4.30
TOTAL CURRENT LIABILITIES	$338,951	15.44	151,957	10.87	99,239	26.21	186,033	16.50
Fixed Liabilities (Bonds, etc.)	294,640	13.43	130,395	9.33	56,300	14.88	206,911	18.38
TOTAL DUE TO CREDITORS	633,591	28.87	282,352	20.20	155,539	41.09	392,944	34.88
CAPITAL STOCK								
Preferred	209,815	9.56	149,015	10.66	34,896	9.20	162,977	14.46
Common	730,193	33.27	568,810	40.69	137,883	36.42	394,333	34.99
TOTAL	940,008	42.83	717,825	51.35	172,779	45.62	557,310	49.45
Surplus & Undivided Profits	624,461	28.45	401,198	28.70	74,880	19.78	201,726	17.90
Deficit	3,774	.15	3,634	.25	24,608	6.49	25,182	2.23
Surplus, etc. LESS Deficit	620,687	28.30	397,564	28.45	50,272	13.29	176,544	15.67
TOTAL CAPITAL INVESTED	1,560,695	71.13	1,115,389	79.80	223,051	58.91	733,854	65.12
TOTAL LIABILITIES	$2,194,286	100.00	$1,397,741	100.00	$378,590	100.00	$1,126,798	100.00
No. of Balance Sheets	1,378	....	1,095	....	642	....	924	....

4
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To summarize the situation, the loss-making corporations in 1930:—

	Per cent of Gross Sales
Made less Gross Profit	11.02
Had more miscellaneous deductions	2.79
Paid more interest	4.84
TOTAL DIFFERENCE	18.65
Profit	5.98
Losses	12.67
TOTAL DIFFERENCE	18.65

Total Assets

The total assets owned by corporations manufacturing pulp, paper and products in 1930, (the last year for which figures are available) amounted to over $2,500,000,000.00, as follows:

TOTAL ASSETS

1930			Per Cent
1,114	Profit-making Corporations	$1,397,741,000	55.36
953	Loss-making Corporations	1,126,798,000	44.64
2,067	TOTAL	$2,524,539,000	100.00

GROSS SALES

1930				Per Cent
1,114	(53.89%)	Profit-making Corporations	$ 990,720,000	65.63
953	(46.11%)	Loss-making Corporations	518,783,000	34.37
2,067	(100%)	TOTAL	$1,509,503,000	100.00

Thus in 1930, 53.89 per cent of the number of corporations owning 55.36 per cent of the total assets did 65.63 per cent of the total business at a Gross Profit of 20.34 per cent and a net profit from sales of approximately 6 per cent. Their sales amounted to 70.88 per cent of their total assets. Conversely, 46.11 per cent of the number of corporations owning 44.64 per cent of the total assets did 34.37 per cent of the total business at a Gross Profit of 9.32 per cent and a NET LOSS of 12.67 per cent. Their Sales amounted to 46.04 per cent of their total assets.

Comparison of Percentages of Assets and Liabilities for 1930

Table "K" shows a comparison of the percentage (Total Assets 100 per cent) of the profit-making corporations Col. "A," the loss-making corporations, Col. "B" and the differences Col. "C." Where the Col. "B" figure is larger than the Col. "A" figure a minus sign is placed before the Col. "C" percentage.

TABLE "K"—1930

ASSETS	Col. "A" Per Cent	Col. "B" Per Cent	Col. "C" Per Cent
Cash	4.67	1.91	2.76
Notes and Accounts Receivable	9.49	10.71	— 1.22
Inventories	14.08	10.02	4.06
Tax-Exempt Investments	2.87	.34	2.53
TOTAL CURRENT ASSETS	31.11	22.98	8.13
TOTAL FIXED ASSETS (NET)	51.74	45.96	5.78
Miscellaneous Assets	17.15	31.06	—13.91
TOTAL ASSETS	100.00	100.00	....
LIABILITIES			
Notes and Accounts Payable	6.50	12.20	— 5.70
Miscellaneous Liabilities	4.37	4.30	.07
TOTAL CURRENT LIABILITIES	10.87	16.50	— 5.63
TOTAL FIXED LIABILITIES, (BONDS, ETC.)	9.33	18.38	— 9.05
TOTAL DUE TO CREDITORS	20.20	34.88	—14.68
CAPITAL STOCK			
Preferred	10.66	14.46	— 3.80
Common	40.69	34.99	5.70
TOTAL	51.35	49.45	1.90
Surplus and Undivided Profits	28.70	17.90	10.80
LESS Deficits	.25	2.23	— 1.98
SURPLUS, ETC., LESS DEFICITS	28.45	15.67	12.78
TOTAL CAPITAL INVESTED	79.80	65.12	14.68
TOTAL LIABILITIES	100.00	100.00	....

Thus, for every $100 in assets, the loss-making corporation had in 1930 8 per cent LESS in Current assets, 6 per cent LESS in Fixed Assets and 14 per cent MORE in miscellaneous assets.

Their current liabilities were 5½ per cent larger and their fixed liabilities 9 per cent greater than the profit-making coporations making total liabilities due to creditors ot over $14.50 greater for every $100 in assets.

They have about 2 per cent less capital stock investment and about 12½ per cent less surplus, a total of 14½ per cent which offsets the larger amount due to their creditors.

The successful corporation has $4.00 invested capital for each $1.00 due to creditors, while the unsuccessful corporation has $4.00 invested capital for each $2.00 due to creditors.

Conclusion

A lot of money must have been lost by the industry in 1932, which may probably be conservatively estimated at $65,000,000 from which must be deducted any profits made.

We must recognize the fact that we paid this amount out to our customers largely to retain their goodwill and because mills were not willing to curtail their operations to 3 or 4 days a week, in order to balance production with consumption of our respective grades.

The puzzle is, how so many mills, which the above tables prove to be in an unsound financial position also to be operating at a serious loss can obtain sufficient credit to continue operations.

This was the point raised in the pamphlet "What Price Prosperity" early in 1931. Events since then have proved that the facts and conclusions then submitted were reasonably correct and the continued falling off in business has merely added to our difficulties in this regard.

One outstanding fact that should be noted is, that mills with a BETTER financial background slid into the column of loss-making corporations in 1930. In 1928 the loss-making corporations only had $45.71 capital invested for every $100 in assets, while in 1930 they had $65.12 also their fixed assets (net) in 1928 amounted to 61,87 per cent of their total assets while in 1930 they were only 45.96 per cent; on the other hand, however, *their "miscellaneous assets" had increased from 13.89 per cent to 31.06 per cent in 1930.*

As an industry we are "preferred" to many because there is still a demand for most of our products when operating at 50 per cent, while most other manufacturing industries are operating at capacity rates much lower than this.

In the case of our own group, we should release some of the pressure on our customers for orders and direct it on our competitors for close co-operation in working out a legitimate plan to place business on a higher plane. This will require constant intense application by the best executive ability available in the industry and the time is fast approaching when this fact will be clearly recognized.

May I urge all mills, making our grades, not now members of the Sulphite Institute (membership in which only costs 5 cents per ton) to recognize once and for all, the absolute futility of continuing to operate with a "cut-throat complex," and to give their support to a determined effort to rectify the distressing conditions now prevailing in the sulphite industry?

If we once stand united, the puzzle will be solved.

William T. Dole Elected Treasurer

LAWRENCE, Mass., February 27, 1933—William T. Dole was elected treasurer of the Champion International Paper Company at the annual meeting of the stockholders held recently. Mr. Dole succeeds to the vacancy caused by the death of George Fred Russell, and will continue to occupy the office of secretary, which he has held for many years.

Note the *Bottom* Blade Mounting › ›

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ACCESSIBLE for YOUR CONVENIENCE

Under the usual arrangement of mounting **bottom** blades directly on shaft, a dull blade is more easily observed than cured. It is necessary to dismount shaft, and possibly a couple of blades, to replace a dull or nicked blade midway of shaft. Hence the tendency to postpone regrinding bottom blades.

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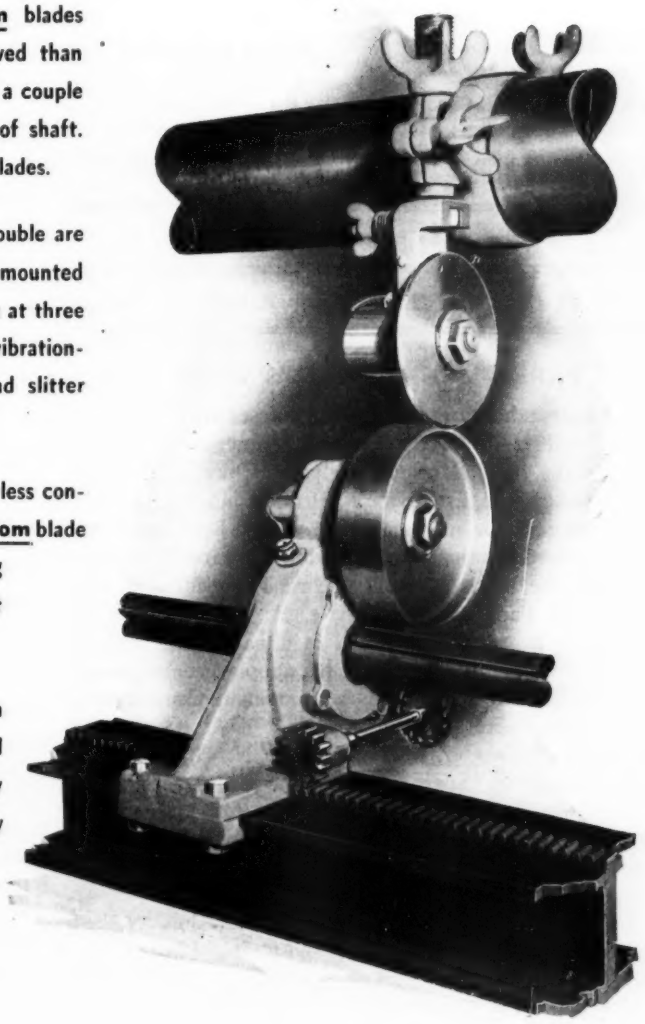
This gives a true-running, almost frictionless and wearless condition with minimum need for lubrication. Any **bottom** blade can be replaced in a moment or so, without disturbing shaft or any other blade, merely by undoing end nut holding it on its shaft.

To complete the improvement, top blades also run in ball bearings. Thus the chance of frictional drag, and of wabble due to worn bearings, is eliminated. Any top blade is replaced, like any **bottom** blade, by removing one nut.



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ESTABLISHED 1872

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PAPER MEN IN "WHO'S WHO"

The paper industry is fairly well represented in the new biennial edition of "Who's Who in America," recently issued by the A. N. Marquis Company, Chicago. Twenty-eight members are listed, their selection hinging, not on mere prominence or success in their chosen field, but more largely on contributions to the public welfare.

Leading the list is Ernst R. Behrend, president of the Hammermill Paper Company, Erie, Pa. Though born in Coeslin, Germany, Mr. Behrend is a naturalized citizen of the United States and served his adopted country well during the World War. He is a Lieutenant Commander, United States Naval Reserves.

Frank P. Carpenter, of Manchester, N. H., president of the Amoskeag Paper Mills and the Burgess Sulphite Fibre Company, is also listed. Some of Mr. Carpenter's diverse interests are described and "Who's Who" recalls his generous gift of the Carpenter Art Gallery to Dartmouth College.

Next comes Winthrop Lakey Carter, of Nashua, N. H., president of the Nashua Gummed and Coated Paper Company, Nashua Package Sealing Company and Canadian Nashua Paper Company. Mr. Carter also has a finger in the distributing end of the paper industry as vice-president of Carter, Rice & Company, Boston.

Mr. Carter is a director of the New England Council, which has done so much for the business life of the Northeastern States. Among his numerous clubs are the Yale, of Boston and New York; the American, London; and the Nashua Country Club. Mr. Carter graduated from Yale with the celebrated class of 1907 and entered the paper industry immediately thereafter.

The career of Hugh J. Chisholm, president of the Oxford Paper Company and allied concerns, is sketched; so is that of Ledyard Cogswell, Jr., chairman and president of the A. P. W. Paper Company, Albany, N. Y. "Who's Who" stresses Mr. Cogswell's extensive business connections and his work during the war, when he was Captain, then Major in the Quartermaster's Corps, U. S. A. He is now a Colonel in the reserve.

No member of the paper trade has traveled farther or seen more than Alfred M. Collins, retired vice-president and general manager of the A. M. Collins Manufacturing Company. Mr. Collins is labeled as a polo player and big game hunter. His numerous expeditions to various parts of Africa, Siberia and South America are described in some detail.

Benjamin A. Franklin, formerly vice-president of the Strathmore Paper Company, won the Distinguished Service Medal for his war services, "Who's Who" relates. Despite his business activity, he has found time to write several important books: "Cost Reports for Executives," 1913; "Experiences in Efficiency," 1915; and "The Industrial Executive," 1925.

The contributions of Alexander G. Gilman, president of the Allied Paper Mills, Kalamazoo, Mich., to the technical side of the industry, are traced. The distinguished career of Archibald R. Graustein, president of the International Paper and Power Company, is noted. Mr. Graustein entered the paper industry as a consequence of the ramifications of his law business. He is also a director of the North East Power Association, Boston; and the Corn Exchange Bank and Trust Company and American Surety Company, New York.

While William H. Millspaugh is not a paper manufacturer, the industry has been the beneficiary of his genius. He patented and developed suction rolls and other paper-making devices which established new world records for speed in the production of paper, "Who's Who" asserts. Mr. Millspaugh sold the Paper and Textile Machinery Company in 1929, retaining its foreign business, however. His present business address is Sandusky, Ohio.

Returning to the industry proper, "Who's Who" introduces Horace A. Moses, who, as president of the Strathmore Paper Company and treasurer of the Rising Paper Company needs no introduction to paper men. Mr. Moses' interests outside of the trade center on developing a closer relationship between the city and country and improving the position of the farmer.

When Arthur E. Pearson is not occupied by his duties as traffic manager of the Hollingsworth & Whitney Company, he spends much of his time in studying genealogy. The visual evidence of this activity is two volumes of "Colonial Families of the United States of America."

Charity is the avocation which engrosses Walter J. Raybold, president of the Rising Paper Company. He is a trustee of the School for Crippled Children and of the Home for Aged Women of Pittsfield, Mass. He has served as vice-president of the executive committee of the general board of the Y. M. C. A., and is now a member of the national council, besides being active in the State organization.

Judson G. Rosebush probably holds more offices in paper companies than any other member of the industry and

he also saw more colleges in his youth. He is president of the Inland Empire Paper Company, Millwood, Wash.; president, Patten Paper Company, Ltd.; president, Outagamie Paper Company; vice-president, Nekoosa-Edwards Paper Company; vice-president and general manager, Northern Paper Mills; and holds offices in several corporations outside of the paper industry. He won his A. B. at Alfred College in 1900 and an A. M. the following year. He studied politics at the University of Pennsylvania for a year; pursued economics at Cornell for another, and spent still another at the University of Wisconsin, polishing this off with a short term at the University of Berlin. Mr. Rosebush served as president of the International Convention of the Y. M. C. A. at Atlantic City in 1922. He has expressed his views on a subject no less important now than in 1922, when he wrote "The Ethics of Capitalism."

Frank J. Sensenbrenner probably believes with leading statesmen that the chief object of a democracy should be to keep open the doors of opportunity. They were ajar in Mr. Sensenbrenner's youth and he pushed through without undue delay. He began his business career as a postal clerk at Menasha, Wis., and then rose to a bookkeeper's estate with the Menasha Chair Company. Here the record becomes somewhat confused, but there is no doubt that Mr. Sensenbrenner is today president of the Kimberly-Clark Corporation and International Cellu-Cotton Products Company, among many others in which he holds office.

Others listed in "Who's Who" are Samuel B. Sutphin, president of the Beveridge Paper Company, Indianapolis; Charles A. and W. Harrison Upson, president and secretary-treasurer, respectively, of The Upson Company, Lockport, N. Y.; and Emery L. Walker. Mr. Walker reversed the time-honored advice. Born in Oregon, he came East to become vice-president of the Kieckhefer Container Company, of Milwaukee and the Eddy Paper Corporation, of Three Rivers, Mich.

A noted ex-paper man is presented in the person of Fiske Warren, former president of the S. D. Warren Company. In 1893, Mr. Warren burst into the sport pages of newspapers as the new tennis champion of the United States. That was too tame, however, and he later made five tours of the world. Thereafter he made an intensive study of taxation and is today one of the world's greatest authorities on this subject.

Then there are listed William F. Whiting, president and general manager of the Whiting Paper Company and former Secretary of Commerce under President Coolidge; another ex-attorney, Sidney L. Willson, president of the American Writing Paper Company, and president of the American Paper and Pulp Association; Cyrus C. Yawkey, an officer of so many companies that he probably can't recall all of them off-hand, but who is president of the Marathon Paper Mills Company and vice-president of the Wausau Paper Mills Company; a prominent West Coast citizen, James D. Zellerbach, executive vice-president of the Crown Zellerbach Corporation; Philip R. Allen, president of Bird & Son, East Walpole, Mass., and a director of the Federal Reserve Bank of Boston; a paper merchant, Joseph T. Alling, president, The Alling & Cory Company, Rochester, N. Y.; Edward W. Backus, president of the Minnesota & Ontario Paper Company, among others; and finally, H. J. Brown, president of the Brown Company, Portland, Me.

Bernard H. Snell Urges Paper Tariff

[FROM OUR REGULAR CORRESPONDENT]

Carthage, N. Y., February 27, 1933—Congressman Bertrand H. Snell, of this section, delivered an interesting address this week before the House of Representatives in which he urged legislative action for protection of the paper manufacturing industry. He pointed out that it was the theory several months ago that foreign prices would rise with depreciation of currency but that just the opposite has actually occurred in some industries. It is his belief that under such conditions the American paper mills must be given relief against the competition of depreciated currency countries whether they produce pulp or paper if the industry is to be continued here on a thriving scale. He brought out that other industries are suffering also from similar conditions but that his remarks were confined to the industry whose preservation is vital to the prosperity of Northern New York.

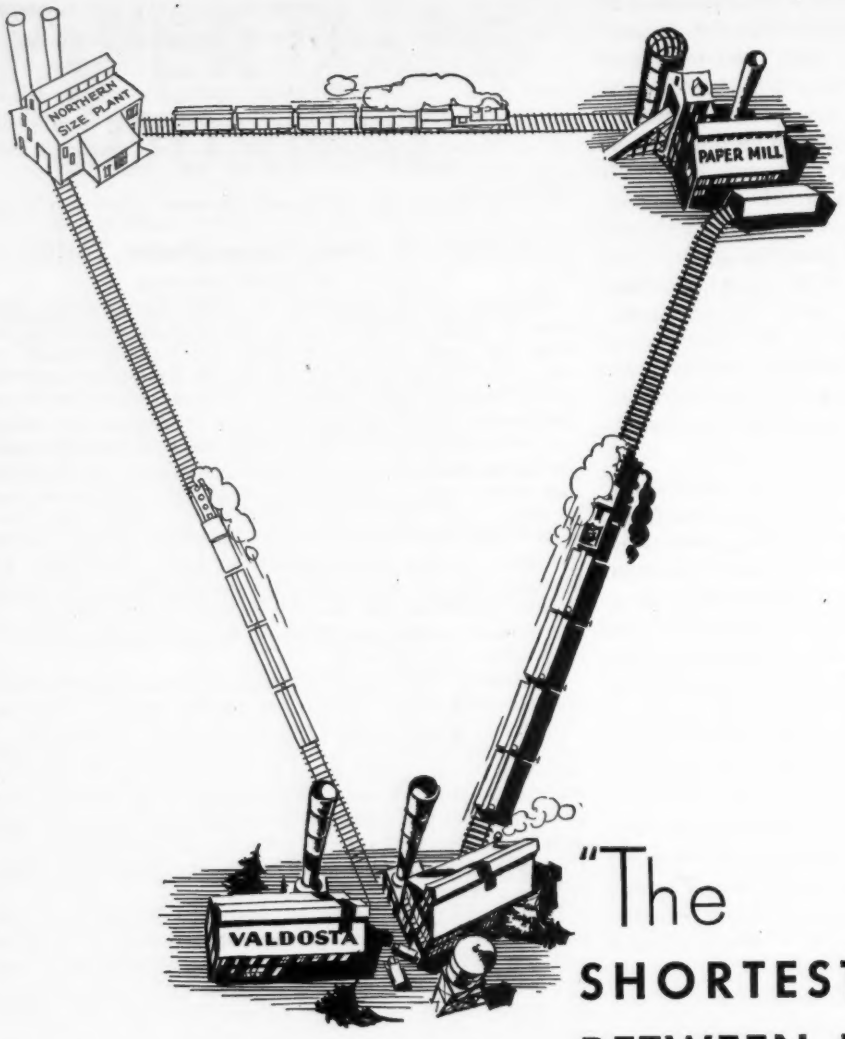
"Northern New York is among the most important paper and pulp producing sections in this country," he said, "and both industries have been hard hit by competition of nations whose depreciated currency has made it possible for them to ship their products into our markets at prices we cannot meet without violent wage reductions. The value of forests in this state have been decreased sixty per cent by depreciated foreign currency. Pulpwood that sold from $18 to $20 a cord in 1930 brought $8 in 1932, which reflects a severe cut to labor."

In illustrating the effect of depreciated currency, he pointed out that while Finnish wrapping paper is dutiable at thirty per cent its currency has depreciated forty per cent so that Finland can pay the duty and still have a ten per cent clear profit. "Its book paper that sold for $3.75 per hundredweight in 1930 was quoted at $2 in 1932 exclusive of duty and was marketed here at less than $2.75 after paying all charges, more than $1 less than the domestic article could be sold. If this tendency continues all of the American industries will be at the mercy of the foreigners and with our plants abandoned the foreigners can fix their own prices for what is to the paper industry its essential raw material," he concluded.

Paper Mill Employment

Four hundred and ten paper and pulp mills reported their employment to the Bureau of Labor Statistics, Department of Labor for December at 78,517 a decrease of 2.6 per cent compared with November and of 5.9 per cent compared with December 1931. The average weekly December payrolls in these mills was $1,348,889 a decrease of 7.1 per cent compared with November and of 24.1 per cent compared with December 1931.

Reports were also received by the Bureau from 314 paper box factories which gave their December employment at 20,715 a decrease of 2.9 per cent compared with November and of 11.8 per cent compared with December 1931. The average weekly December payrolls in these plants was $356,650 a decrease of 5.9 per cent from November and of 22.3 per cent compared with December 1931.



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535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Quantitative Determination of Ash in Wood Pulp*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

I Apparatus

(1) A crucible, such as platinum, alundum, or porcelain which will not change under the ignition conditions used, and which has a tight fitting lid is required.

Crucible should have capacity of 30 m.l. or more.

(2) A balance sensitive to at least 1 mg. and preferably to 0.1 mg. should be used.

(3) Any suitable desiccator such as the customary analytical desiccator which employs sulphuric acid or calcium chloride as the drying agent may be used.

(4) An electrical muffle furnace is recommended for igniting the pulp sample. A Meeker or other suitable burner may be employed for this purpose.

(5) A suitable drying oven with temperature control between 100 deg. C. and 105 deg. C. should also be available.

II Test Specimen

(1) Approximately five grams of pulp shall be used for each determination.

(2) The specimen shall be representative of the lot being tested.

If a carload of baled pulp is being tested, at least 10 per cent of the bales shall be represented by small pieces composing the portion to be ashed. Reasonable modifications will necessarily be made in sampling lots of different sizes and different packing methods.

III Procedure

(1) The empty crucible and cover shall be weighed to the third or fourth decimal place in grams, depending on the sensitivity of the balance used.

The specimen (equivalent to approximately 5 grams dry) shall be placed in the crucible and the whole placed in the drying oven where the pulp is dried to constant weight. The crucible and contents should be cooled in a desiccator and the crucible should be covered during weighing to prevent excessive absorption of moisture from the air. The amount of ash in pulp is usually so small that a slight error in weighing at this point will not materially affect the accuracy of the determination.

(2) The crucible and contents shall be placed in the muffle furnace (or over the burner) and ignited until all the carbon is burned out. Heating should take place slowly at the start, and the crucible should be protected against strong drafts at all times to avoid mechanical loss.

The crucible shall be cooled in the desiccator and weighed. Heating, cooling and weighing shall be repeated until constant weight is reached. Weighing at this point should be done as accurately as possible; a small error here introducing a relatively large error in the determination.

(3) The constant weight after ignition, less the weight of crucible equals weight of ash.

$$\frac{\text{Weight ash}}{\text{Oven dry wt. of pulp}} \times 100 = \text{per cent ash on o.d. basis}$$

$$\text{Per cent ash o.d. basis} \times .9 = \text{per cent ash on a.d. basis.}$$

or

$$\frac{\text{Wt. ash} \times 90}{\text{o.d. wt. pulp}} = \text{per cent ash on a.d. basis.}$$

IV Reporting

The amount of ash shall be reported as the percentage of air dry pulp to the nearest 0.01 per cent.

V Accuracy

Duplicate determinations should check within .03 per cent. (This is a 6 per cent error on a result of .5 per cent ash and a 12 per cent error on a result of .25 per cent ash.)

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Submitted by H. W. Laymon, The Mead Corporation, Chilicothe, Ohio.
This method has been approved by the Pulp Testing Committee of the Technical Association of the Pulp and Paper Industry. Send suggestions and criticisms to R. G. Macdonald, 370 Lexington Ave., New York, N. Y.

Rubber As Noise Eliminator

Rubber is useful in many ways to eliminate noise. Here is a new one. A ¾ inch hydraulic pipe in one of the buildings of The B. F. Goodrich Company, Akron, Ohio, developed a noisy water-hammer due to fluctuating pressure. No remedy could be found until an engineer substituted a piece of ¾ inch hose for a section of the pipe. This ended the trouble at once.

Morterud Circulation System for Sulphite Digesters*

By Herman S. Kiaer[1]

Due to the development in recent years of suitable acid-resistant steel alloys, we are today in the fortunate position of being able to apply trouble-free forced circulation in one form or another to the sulphite cooking process.

The problem as such, however, of forced circulation in sulphite digesters is by no means a new one. Perhaps as good an indication as any of the tremendous amount of inventive effort in this field alone is supplied by the Patent Office records of this and other countries, and in this connection, it may be of interest to mention that, as early as 1867, a patent, probably the first of its kind, was granted to an Englishman by name Newton. A passage from said patent letter reads as follows: "The invention relates to the use of a circulating pump in combination with a wood or straw pulp digester, whereby the digester liquor is forced to circulate continuously through the vegetable fibrous mass to be pulped."

Since that time, a great number of patents have been issued to inventors in this field, but very few of those inventions met with success in actual pulp mill operation.

Early Work by Morterud

For the last thirty years or more, Einar Morterud of Norway has been active in developing improvements in pulp manufacturing processes. Morterud is particularly well known for his system of forced circulation and indirect heating in soda and sulphate digesters. This system, which was originated by Morterud, has found a very wide application wherever soda pulp or kraft pulp is produced.

As early as in 1906, a system for forced circulation in sulphite digesters was installed by Morterud in a Swedish mill. The system comprised a bronze pump, bronze piping, and a heat-exchanger with copper tubes, for indirect heating of the acid. Although the system as such did function satisfactorily, it was merely a question of time before the material wore down, and the apparatus had to be scrapped. At the time, there was thus no choice but to await developments in regard to more suitable acid-resistant materials.

Morterud Sulphite Circulating System

When, a few years ago, the chrome-nickel-steel alloys became available to the sulphite industry, Morterud went ahead and designed a circulating system, based not only on his long and varied experience in this field, but which also incorporated some rather novel ideas.

For Morterud, the line of least resistance would have been to have followed the same general design as he had been using with such success in the soda and sulphate field. Contrary to this, however, Morterud based the design of his sulphite circulation apparatus on the following line of reasoning:

1. While, in the alkaline cooking processes, it is of decided advantage to provide for indirect cooking by means of a heat-exchanger, due to the necessity of recovering the cooking chemicals, such is but seldom the case in the sulphite industry. Besides, most sulphite mills are equipped today to cook by direct means, using high pressure steam.

2. Given efficient forced circulation, by which is meant reasonably uniform temperatures throughout the digester at all times, it need make no difference to the pulp quality whether cooking is by direct or by indirect means.

3. The high cost of chrome-nickel-steel makes it obvious that the ideal design for a circulating system would be one allowing economy in the use of this metal, without in any way effecting the efficiency and performance of the system.

The result of all this was a circulating system, the first units of which were put in on trial in, respectively, the Billerud Mill in Sweden, and the Greaker Mill in Norway. Subsequently, Morterud units were mounted in all digesters in these two mills. All told, from 1929 to 1932, forty or more Morterud circulation units have been installed in Scandinavian sulphite mills.

While slight variations were made in the design of each circulation unit to suit particular digester conditions, these units all have one main point in common: the circulating pump, with all piping, is mounted *inside* the digester, with only the pump shaft extending out through the digester wall.

Morterud System Type No. I

Of the various types of circulating apparatus now offered by Morterud, the so-called Type No. I is especially suited for cooking conditions such as one usually finds them in this country.

The suction strainers are in the shape of two straight, oval-sectioned pipes, hinged at one end to brackets mounted in the digester shell, and supported in a simple, sliding joint at the other end. Circulation of the cooking acid is thus from top to bottom, that is: through the strainers to the pipe header, from which through the pump down through the piping to the bottom of the digester.

The rate of circulation is relatively high, or usually from five to seven times the acid volume per hour. As a result, the digester bottom cone is constantly supplied with acid, which, over a wide area, pushes up against and percolates up through the chip charge. This action is closely uniform throughout the digester, with resulting uniform temperatures.

In the design of the pump, great care has been taken to insure trouble-free operation. The pump casing is of the split type, bolted together and mounted from the inside of the digester, and attached by bolts to a sleeve which extends out through the digester wall. The whole impeller assembly is mounted in place from the outside. Special means are taken to cool and lubricate the impeller shaft, and, needless to say, this is a most important point in regard to the operation and maintenance of the pump.

The piping is made from plate, welded together. Each section is supported by a bracket at one end, and is free to expand at the other end, by means of a sliding, stove-type, connection. This is a special feature, covered by patents.

As an emergency measure, a throttle valve is built into the circulation piping. This valve is closed only in case of shutdown of the pump, as there might otherwise be a risk of the piping acting as a by-pass for the steam used for cooking.

Steaming of the digester is either done in the usual way, through the digester bottom, or, in combination with this.

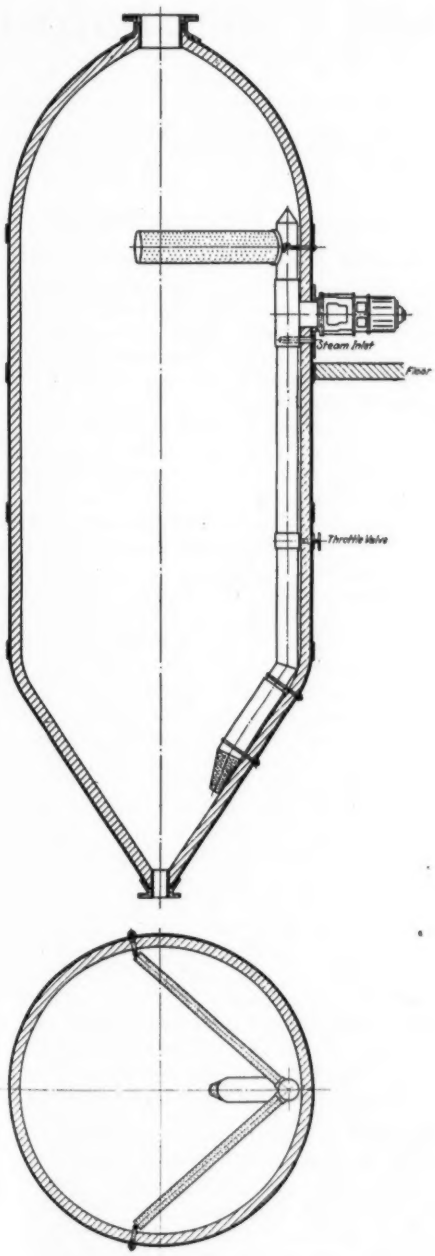
* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933.
Contribution of the TAPPI Acid Pulping Committee.

[1] Member TAPPI, Engineer, 230 Park Avenue, New York, N. Y.

one may avail oneself of a special steam inlet to the circulation piping, with the steam entering at a point right below the pump.

Other Types of Morterud Circulation Apparatus

As distinct from the Type No. I, Type No. II incorporates several additional features, the chief one of which is a reversible, or two-way, pump. Combined with suitable strainers, and with double steam-inlets to the circulation piping, this system makes it possible to circulate the acid from the bottom to the top of the digester during the major part of the cook, and then, towards the end of the cook, reverse the circulation in order to "loosen" the digester charge. This is of decided importance in order to secure a "clean blow."



Morterud Circulation System No. 1

Morterud is also prepared to supply indirect heating in combination with his circulation apparatus. In such case, the heat-exchanger, which is of extremely compact design, is mounted *inside* the digester, and simply takes the place of certain sections of the piping.

Possible Objections

For many sulphite men, it may be natural to object to the idea of mounting the circulation apparatus inside the digester. The best answer to such an objection is to refer to the actual experience gained with the many Morterud units now in operation. Some of those pumps have been running for three years, and it goes for all of them that they are standing up in excellent fashion. When the steel alloy that goes into the pump and the piping is correctly made from the start, there virtually is no wear, and consequently no risk of any part of the system breaking down.

A second objection might be that a circulation system, when mounted inside the digester, takes up otherwise useful digester space. However, the space so required figures out to be around 1 per cent of the digester volume, hence, this objection may be considered a very minor one.

Finally, one may argue that, with an inside system, there may be a tendency for pulp and dirt to collect behind the piping. Actual experience with the Morterud system disproves such a contention. No doubt, the smooth exterior faces of the pump and of the piping have a decided bearing in this regard.

Advantages of the Inside System

The distinctive advantages of the Morterud inside circulation system may be enumerated as follows:

1. The first cost is low since the construction is of extreme simplicity, and neither the pump casing nor the piping need be built to stand any pressure.

2. The cost of operation and maintenance is low for a number of reasons: Relatively low power is required for pumping, since friction losses are low, because the piping is usually of diameters ranging from 12 to 14 inches. All expansion and contraction is taken care of in the simplest and most effective way possible.

The impeller shaft has a long life. This is usually the weak spot in any pump handling hot acid. However, due to the Morterud method of lubricating and cooling the impeller shaft, wear is reduced to an absolute minimum.

Operating Results

The experience gained in Scandinavian sulphite mills with Morterud circulation units show that, depending upon local conditions of cooking, considerable improvements have been effected in the following respects: pulp uniformity, pulp quality and yield, screenings, also economies in regard to steam, sulphur, and limestone. Such economies were especially impressive in all cases where Morterud circulation was combined with chip packing.

In regard to the question of forced circulation with direct heating as against forced circulation with indirect means of heating, it is obvious that the latter system may be preferable in any sulphite mill either having a surplus of low pressure steam for heating, or having reasons for keeping the concentration of their waste liquor as high as possible. On the other hand, various claims have been set forth by proponents of circulation systems with indirect heating to the effect that the pulp so produced is superior to direct-steamed, circulation cooked pulp. There are not, to my knowledge, any figures available to prove such a contention. To the contrary, certain official test figures for two Finnish mills producing strong sulphite, one with Morterud circulation and direct steaming, and the other with a circulation system using indirect heating, showed

that the directly cooked pulp was fully as good as the indirectly cooked pulp. *(1)*

Conclusion

The main purpose of any system for forced circulation is to equalize temperatures within the digester.

The method of heating the digester contents, whether by direct or by indirect means, is a question of secondary importance.

It is naturally agreed that an indirect system may offer definite advantages to a mill either having a surplus of low-pressure steam, or wishing to recover products from its waste liquor. However, in the majority of our sulphite mills today, direct cooking with high pressure steam is being used exclusively. Such being the case, all the essential benefits of forced circulation can be secured by installing a simple system for forced circulation, without the added expense and complication of apparatus for indirect heating.

It has been shown that, as an example of modern circulation apparatus, the Morterud system, by virtue of great simplicity of design, and due to the pumping apparatus being mounted inside the digester offers definite advantages in regard both to low first cost and to low cost of operation and maintenance.

Literature Cited

(1) Paper Trade J. 95, 12:28 (September 22, 1932).

Surplus Power in the Pulp and Paper Industry*

By A. G. Christie[1]

Abstract

The economic utilization of surplus power has never received so much thought as at the present time. Every possibility of its use is given careful consideration and studies are made to determine the probable savings from its purchase or sale. As a result of this interest, one may safely predict the development of steadily increasing quantities of surplus power.

This paper attempts to answer the questions: What is surplus power? Under what conditions is it available? How much does it cost to produce? What is its market value? When can surplus power be interchanged?

Surplus Power

Surplus power, for the purpose of this discussion, is defined as the energy which an industry or a utility may at times have available in excess of its own requirements from either hydro-electric or steam generating plants.

Availability of Surplus Power

River flow conditions may make surplus hydro-power available at other than full flow periods. Off-peak periods at night and at other hours render capacity available for the generation of surplus power. Such irregular generation of power at odd periods will be called in this paper "random surplus power".

Much steam is required in the pulp and paper industries for drying purposes. This may be generated in boilers of moderate pressure and passed through turbines which serve as reducing valves. There is the possibility of installing higher pressure boilers and turbines and generating much more power if a profitable outlet can be found for such power. Frequently waste material from the industry is available in quantity and must be destroyed. Steam power can be generated cheaply with such material for fuel and surplus power thus made available for sale.

Public utilities have at random times, potential supplies of surplus power available from steam generating stations. For instance, the night loads of every utility from about 10 p. m. to 6 a. m. are far below peak capacity and generally much below the load at which the station can be operated at best economy. Losses occur from banked boilers and from starting-up and shutting-down turbines which are saved if these are kept in continuous operation. The utility is fully justified in offering such supplies of off-peak power for sale at low rates based on the incremental cost of production and service.

Production Cost of Surplus Power

Random supplies of surplus power for which a market is sought, can generally be produced at comparatively low cost. This is based on the principle that the fixed charges on the plant are distributed over those loads that contribute to the maximum peak demand of the year. Hence surplus power, being generated with otherwise idle capacity and during off-peak periods, would bear none of these fixed charges. The cost of such surplus power in a hydro plant would therefore consist of the incremental portion of the operating labor and maintenance costs, the total of which would be low.

It sometimes occurs that a hydro power site has been developed by a paper company which has a potential capacity in excess of the mill requirements. For instance, assume that the potential *"firm"* or all-year-round capacity of a site is 60,000 kw. but that only half of this capacity is required by the present mill and hence only 30,000 kw. of generating plant has been installed. The incremental cost of equipment for 30,000 kw. additional capacity would include the purchase price of turbines, generators, and electrical equipment, together with the expense of installation. This incremental cost may be small compared to the complete investment in dam, water rights, leases, power house, etc. The fixed charges on this additional equipment are part of the cost of this surplus power. Incremental operating costs for labor and maintenance, always a small factor in hydro plants, form another part of the cost of this additional 30,000 kw. An allowance for profit, taxes, insurance, etc. completes the costs. The total of these costs for the surplus power usually amounts to such a low figure as to induce a ready sale. This low selling price can be justified by the owner for he is earning a profit on his additional investment over fixed and other charges, from the sale of 30,000 kw. that would otherwise be wasted.

Situation Much Altered in Recent Years

The situation in regard to steam plants connected with paper mills has altered much in recent years. The services of men with wide experience in utility plant design and operation have been secured for the planning and supervision of these plants. High grade engineering is apparent in the design of many new plants, and the same equipment and methods are being used in such plants as in utility cen-

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Contribution of the TAPPI Heat and Power Committee.

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tral stations. As a result, power is being produced at costs that bear favorable comparison with those in central stations. The presence of such men in control of industrial plants will give those in charge of public utilities more confidence in the industry's ability to provide satisfactory cooperation in the supply of surplus power to the utility's system.

In an industrial plant the power produced in a turbine which serves as a reducing valve to a process demand for steam, can be generated for about 4500 B.t.u. per kw-hr. in fuel, or roughly for about 1/3 pound of coal per kw-hr. This is a lower fuel consumption than in any central station. The other costs chargeable to such surplus power would be the fixed charges on the excess in first cost paid for the high pressure plant over that for a low pressure plant which would be just sufficient to furnish the industry's steam and power demands. The additional repairs and maintenance, if any, of such high pressure plant are also chargeable to the surplus power. If no surplus power were to be generated, a smaller turbo-generator might suffice. Hence fixed charges on the extra capacity of the turbo-generator form a further element in the cost of surplus power.

Should Yield Good Profit in Many Cases

If this surplus power is to be sold as "firm" or continuous power, the industry must be certain that it can supply such energy to a utility or other customer at all times regardless of business condition in the industry. If continuous service can be guaranteed over a term of years, and if the industrial plant is prepared to cooperate with the utility to maintain voltage regulation and to plan operations to secure the best system performance, this "firm" or base surplus power has a value equal to the sum of the fixed and operating costs upon equivalent central station capacity, the installation of which capacity will be saved by the utility. This value should yield a good profit to the industrial plant in many cases.

On the other hand, if surplus power is only available in irregular amounts at random times, it is virtually "dump" power and then has a value only equal to the incremental cost of developing an equivalent amount of power in the utility's plants. Unless coal prices are high, this incremental cost is a small figure. This amount may not provide enough return to warrant the investment in extra turbo-generator plant to develop this power.

On the other hand if the capacity of the turbo-generator plant is fixed by the industry's maximum demand and there are frequently times when the demand in the industry for steam exceeds that for power, saleable surplus power can be developed from such excess steam demand at a total cost of only the fuel consumed for power, i. e., about 1/3 pound of coal per kw-hr. This is about the cheapest power that can be generated from steam and its sale at any incremental cost to the utility should prove profitable to the industry.

Waste Material for Boiler Fuel

Some industrial plants such as saw mills, have large amounts of cheap waste material suitable for boiler fuel. Its use may so reduce the cost of generating power that random surplus power can be profitably furnished to the utility at its incremental cost, particularly if local coal prices are high. If this power from waste fuel can be sold on a firm or continuous basis, and over a term of years, thereby taking the place of added capacity in the utility's plant, such power generation may prove profitable even if additional equipment must be installed in the industrial plant, for the value of such power to the utility would approximate the fixed and operating costs on the equivalent capacity in its own plant.

It is sometimes stated that utility systems are not interested in small supplies of industrial power. Size of supply is relative only. While 500 kw. may not be of any importance to a large metropolitan system, it would prove a significant and welcome addition to many a small utility.

Surplus power can be made available from public utilities at its incremental fuel, labor and maintenance costs, plus an allowance for transmission losses and for service charges, and a reasonable rate of profit. Such power rates will bear none of the fixed charges on the main plant equipment and hence would be low as compared to the prices quoted in regular rate schedules for power supply. Objections might be raised to the sale of power at such low rates on the basis that these discriminate against day users of power. Yet the facts of the case fully warrant this basis for rate making for it provides some return on otherwise idle and non-productive plant.

Cases may arise as, for instance, during low water periods on a hydro-plant where the purchase of utility power at night and the storage of water above the dam during these hours, might enable the industry to continue to operate at other hours at full capacity during the low water period and also at a low total cost for power.

The Sales Value of Surplus Power

The probable sales value of surplus power cannot exceed the cost to the purchaser of procuring an equal supply from another source. The public utilities should afford a market for industrial surplus power and values of such power will be considered with such a market in mind.

If the utility secures its power from hydro sources, it would only be interested in a supply from an industrial plant of "firm" surplus power, as for instance, in the excess 30,000 kw. in the example already noted. The value of the industry's surplus "firm" power would depend upon the cost to the utility of developing an equal supply at one of its present plants or at a new site. Since the industry's surplus power is sold at a price based upon incremental cost figures, its price should prove attractive to the utility as compared to the costs of developing a new site.

Only Low Price for Surplus Power

Should the utility operate steam-generating stations, with the necessary capacity to carry its peak load, it can only afford to pay a price for the industry's surplus power equal to the incremental cost of generating the same capacity in its own stations. Since fixed charges must be paid upon the steam plant whether it is used or not, the incremental charges in that plant will include only fuel and certain portions of the costs of labor, repairs, and maintenance. In general this incremental cost is not large for modern plants generate a kw-hr. on 1 to 2 pounds of coal and added labor and other charges are small. Hence only a low price can be paid for the industry's surplus power.

On the other hand, if the utility needs additional capacity which may be secured by an extension to one of its plants, or by the purchase of the industry's surplus "firm" power the latter possesses quite another value if available at all times. In this case, the incremental cost to the utility to furnish this power in the extension of its own plant will include fixed charges on the added equipment as well as fuel, labor, repairs, and maintenance charges. These may double the value of the surplus power from the industrial plant over the preceding case. In order that the util-

ity be justified in purchasing such power under these conditions, it would appear desirable to make the term of the contract equal to the average life of steam station equipment, i.e., from 16 to 20 years. Otherwise the investment in the utility's plant is simply postponed for the shorter period.

There are times when utilities have surplus power for sale. For example, assume that the utility undertakes the development of a large hydro site and that the complete capacity of this site is much in excess of the immediate needs of the utility but will be required at a future date by the increasing load of the utility's system. At what cost can the utility sell this surplus power? Its cost is obviously the incremental cost of added equipment and operating labor, together with fixed charges on the investment in extra generating equipment together with a reasonable profit as in the previous case of the industrial hydro plant. Such surplus power is available in decreasing amounts as the utility's load grows and the purchaser of such power must make other provisions for his needs as the available surplus decreases.

Every Possible Market Canvassed

The decreased industrial loads of recent years have left certain of the Canadian hydro systems with installed generating capacity in excess of the present demand. Every possible market for this surplus energy has been canvassed. Much of such capacity is now being furnished to electric steam boilers in pulp and paper mills. These boilers are being furnished in some cases by the utility selling the power. Electric boilers can be secured at a low cost, and their installation is not a large item of expense. The consumer is justified in paying for such surplus power, a price equivalent to his coal cost and the expense for labor, repairs, and maintenance of coal burning plant of equal capacity, less the expense of operating the electric boilers. This surplus energy is sold on short term contracts of three to five years duration. The rates are said to give a return to the utility only about equal to its bond interest. Obviously such rates indicate distress selling of surplus power and cannot be considered as permanent.

The sale values of surplus power from utility steam plants has been discussed in a previous paragraph.

The Interchange of Power

Cases frequently arise where the industrial plant has surplus power available for sale at one time of the year, and at another time it may be profitable to use surplus power from the utility. For instance, a northern plant with a large space-heating load, may have potential surplus power available in winter. In summer it may be profitable to take the surplus power of the central station and to curtail the operation of the industrial plant. Summer loads on central stations seldom approach the peak capacity. Hence ample idle capacity is available to furnish such needs in summer. Under what conditions can such interchange be negotiated?

If only surplus power is to be considered in both cases, values as indicated in the preceding paragraphs based upon the incremental costs in each case, can be easily established.

It is evident from the previous analysis that it may not be equitable to expect utility and industrial plants to interchange power on a kilowatt-for-a-kilowatt basis since the utility must include certain distribution costs in its charges for surplus power.

Interconnection may have other values, as for instance, in providing reserve for both parties in emergencies. While this reserve has potential value in each case, it is frequently difficult to assess this amount. The question of reserve value leads to much controversy in negotiations. Its value can only be fixed by mutual agreement with full consideration of the interests of both parties.

Cases also arise where an industrial plant desires to take central station service at other than off-peak hours. Normally this load would fall in the class of regular power users and if required throughout the year must be paid for at the usual rates. However, as previously indicated a customer for summer service only should be entitled to energy at the incremental cost of fuel, labor, and maintenance, since fixed charges will be paid by the other parts of the system regardless of whether this surplus power is sold or not, and since this customer does not contribute to the peak load for which the plant capacity must be provided.

A utility may offer to furnish high pressure steam from an adjacent central station to a paper plant in which a steam turbine to serve as a reducing valve, is installed either by the utility or the industry. The output of this turbine which varies with the industry's demand for steam, furnishes the industry's requirements. Any available surplus power is delivered to the utility's network at the incremental cost to the utility for generating this output. During periods of low steam demand, power is available to the industry from the utility at rates dependent upon whether or not this demand may be made at any hour, or whether only off-peak power is needed. Such a type of agreement has proven profitable in other industries.

Interconnection becomes more valuable to the utility as the capacity of the industrial plant increases since the unit cost of making the interconnection decreases. The industrial plant can often be built cheaper than the central station and may contain less reserve capacity.

Interchange of power between utility and industrial plant can be effected satisfactorily only if the closest cooperation prevails between the operating staffs of the two plants. The load dispatcher of the utility should have some authority over the operations of the industrial plant in order to secure the maximum service from that source. Regard for each other's interests must replace the distrust of public utilities so often apparent in the minds and actions of the operators of the smaller industrial plants. The more intelligent staffs of the larger industrial plants usually evince a desire to provide the fullest cooperation.

Agreements for the sale or interchange of surplus power should be based only on the cold hard facts of each case. The performance figures and complete costs of both parties should be presented and considered and values for power based on figures which represent true costs to each party. Such negotiations must consider dollars and cents and must be devoid of emotional appeal and cut-throat bargaining. Equitable rates and fair contracts usually prove satisfactory and profitable to both parties.

Conclusions

This discussion has indicated the availability of certain possible supplies of surplus power both in industrial and utility plants. In many cases a market can be found for such power which would prove profitable to both producer and purchaser. Each case must be governed by economic conditions and costs must be frankly considered by both parties. In general surplus power has only incremental values and these are generally low. Power interchange may be beneficial and profitable in many cases. Much potential surplus power exists in America and every pulp and paper industry should be studied to determine whether some economic return may be secured from its surplus power.

The Value of a Paper Stiffness Test*

By F. W. Adams[1] and John Bellows[2]

The standard physical and chemical tests for paper yield much information which is of value in its production and utilization. There are certain characteristics of paper, however, for whch no satisfactory tests have yet been devised, but which are determined by the judgment of the skilled papermaker and the ultimate service which the paper delivers in use. One of these characteristics for which no suitable test has been available is designated variously as feel, softness, flexibility, pliability or stiffness. While tests have been devised to indicate the stiffness of special papers such as card and folder stock, the general applicability of an accurate determination of stiffness has not been appreciated. Previous methods for testing the stiffness of card and folder stock are not generally applicable and are subject to considerable experimental error.

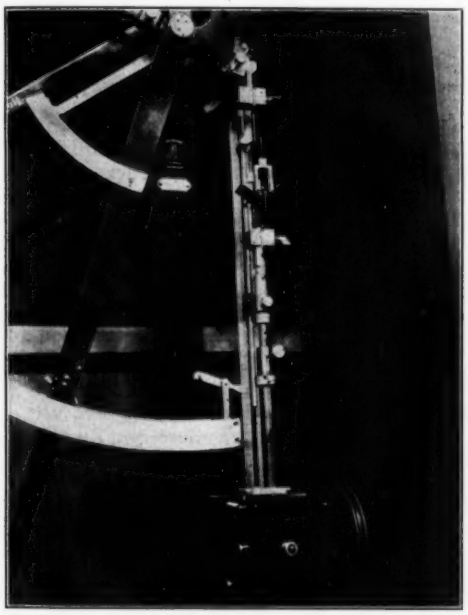

FIG. 1

Witham-Bellows stiffness tester in a standard tensile machine.

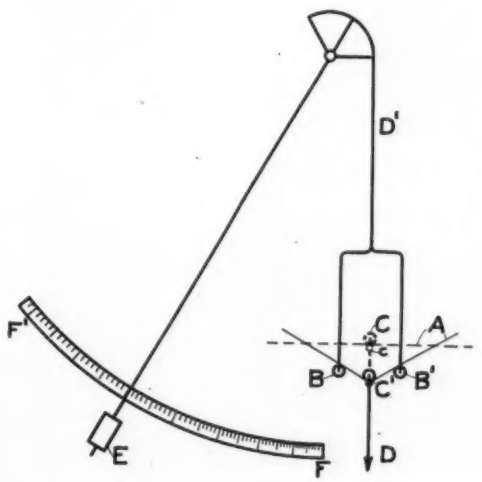

FIG. 2

Diagrammatic sketch of stiffness tester. Not to scale.

Following the suggestion of G. S. Witham, Jr., in his patents[3] of July and Nov., 1921, a stiffness tester has been developed which may be used on a wide variety of papers. This idea utilizes the principle employed by the mechanical engineer for testing the deflection of beams, by supporting the beam near its ends and loading it at the center. For a material like paper, the deflection per unit of loading is high, so that the test is modified by measuring the maximum loading which can be applied to a strip of paper resting on two parallel supports.

The Witham-Bellows stiffness tester as developed was used as an attachment to a Schopper tensile tester which was at hand. It is shown in Figs. 1, 4 and 5. For these tests the weight was removed from the pendulum and a small counterweight was added to the top of the tester to balance the pendulum at zero with no load. For checking

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 13-16, 1933. Contribution of the TAPPI Paper Use Requirements Committee.

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[2] Assoc. member TAPPI, chief chemist, The Parker-Young Company, Lincoln, N. H.

[3] U. S. Patent 1,385,164; Canadian Patent 214,457.

TABLE 1.—STIFFNESS OF VARIOUS PAPERS AT CONSTANT RELATIVE HUMIDITY

69 per cent Relative Humidity at 74 deg. F.
Two strips 1" wide by 2.5" long with wire sides together taken in each test.
Stiffness expressed as grams.

Sample	A		B		C		D		E		F		G		H		J*		K*		L†	
Kind of paper	Card		Manila		Spec. Mla.		Spec. Mla.		Wax. Mla.		Wax. Mla.		Envelope		Ledger		Manila		Envelope		Bond	
Basis weight, lb. (24 x 36—500)	99		100		100		100		73		75		74		74		44		46		37	
Direction	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
	388	219	511	274	555	290	433	223	163	96	219	96	161	83	170	83	104	46	117	48	130	113
	380	227	478	299	503	266	437	223	168	89	215	94	160	77	167	84	108	46	117	50	132	113
	380	227	482	311	519	240	425	211	160	84	206	89	163	82	180	83	110	48	113	48	128	115
	401	223	478	294	474	257	437	202	172	83	211	89	159	84	169	86	108	46	113	48	128	113
	360	206	491	270	503	270	425	211	176	76	206	91	164	83	171	78	104	46	110	52	126	117
	335	214	470	299	458	262	429	215	176	83	202	89	171	82	181	87	106	48	119	50	128	115
	363	206	454	303	487	257	429	215	172	85	206	90	172	74	167	84	104	46	115	48	132	117
	360	210	474	286	474	262	413	207	168	89	202	90	168	82	186	83	106	46	115	48	132	117
	372	189	454	286	478	266	409	211	163	92	198	89	169	83	174	83	108	43	115	52	136	115
	384	227	487	303	470	262	413	207	160	95	198	91	177	78	175	80	106	46	115	52	136	113
Average	372	215	478	293	492	263	425	213	168	87	206	91	166	81	174	83	106	46	115	50	131	115
Average deviation	13	10	12	11	22	8	8	5	5	5	5	2	5	3	5	2	2	1	2	2	3	1
Per cent average deviation	3.5	4.7	2.5	3.8	4.5	3.0	1.9	2.3	3.0	5.7	2.4	2.2	3.0	3.7	2.9	2.4	1.9	2.2	1.7	4.0	2.3	0.9

* 67 per cent relative humidity at 77 deg. F. 4 sheets.
† 65 per cent relative humidity at 74 deg. F. 8 sheets.

the precision of the tests, the scale readings were calibrated against the actual force in grams required to balance the pendulum. In actual mill use the stiffness is calculated directly from the scale reading. The contemplated construction of a new instrument designed for this test will of course read directly in grams. The results may be reported in grams or as a ratio to the ream weight of the paper.

The operation of the instrument is shown diagramatically in Fig. 2. The strip of paper to be tested, (A), is inserted under the rod, (C), where it is held in place by the clip, (c). The rod, (C) is connected to the shank, (D) which is fastened in the lower jaw of a standard tensile tester. The rod, (C) is drawn down by the tensile tester, pulling the paper in contact with the rollers, (B) (B'). The stiffness of the paper causes the force to be transmitted through (D') to the pendulum of the tensile tester which travels out along the scale (FF') until the maximum reading is reached. Friction due to the paper slipping over the supports is eliminated by providing suitable bearings in the ends of the rollers, so that even a highly finished sheet will cause the rollers to turn. The rollers, (BB') are accurately parallel and are maintained in the same horizontal plane by suspending the yoke ($BD'B^3$) from a universal pivot which also allows the rod, (C) to center accurately between (B) and (B') and parallel to them.

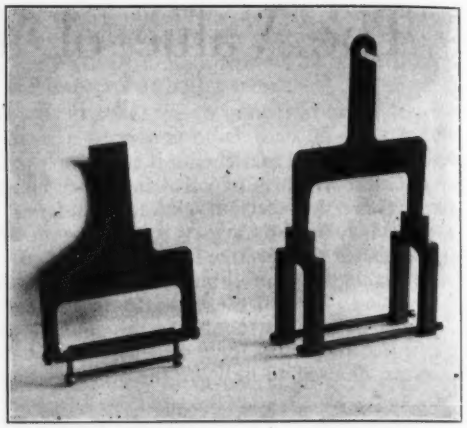

FIG. 4
Stiffness test attachment.

The present instrument was designed with a distance of 0.75 inch between centers on the rollers supporting the paper and wide enough to take a strip 1.5 inches wide without binding on the edges. A few preliminary tests showed that the reading shown by a strip of this width was 50 per cent greater than a 1-inch strip, so that a 1.5 inch strip was standardized on as this would give the maximum scale reading for the instrument. The length of the strip,

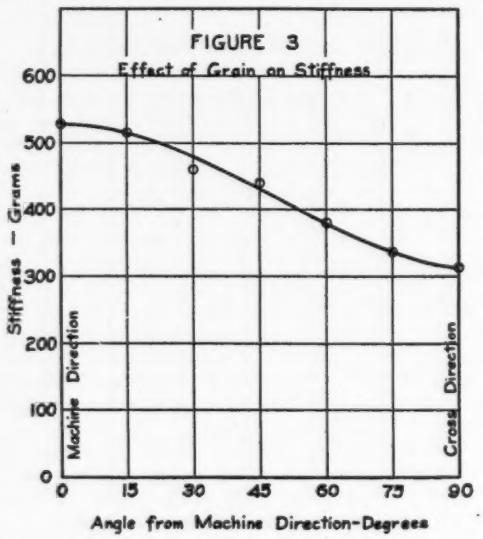

FIG. 3

TABLE 2
EFFECT OF WIRE VERSUS FELT SIDE ON THE STIFFNESS OF PAPER
Stiffness expressed as grams

Sample	M		N					
Kind of Paper	MANILA		FOLDER					
Test Conditions	64% Rel. Humidity at 76° F.		61% Rel. Humidity at 83° F.					
Basis Weight, lb. (24 x 36—500)	97		150					
Direction	Machine		Machine			Cross		
Number of Strips	2	2	2	1	1	2	1	1
Method of Testing	Wire side up	Wire side down	WST*	WS up	WS down	WST*	WS up	WS down
	453	417	1010	636	595	778	409	376
	466	438	1030	595	571	691	266	266
	495	417	1030	600	611	580	290	278
	474	470	940	520	507	555	282	282
	417	470	990	607	644	543	299	274
	421	413	1040	587	568	715	380	351
	470	499	960	563	580	750	355	335
	479	437	1080	615	623	715	368	351
	491	453	1070	580	568	754	351	372
	495	417	1090	571	564	691	335	335
Average	466	443	1024	587	583	677	334	322

* Wire sides together.

TABLE 3
EFFECT OF NUMBER OF SHEETS ON STIFFNESS
Stiffness expressed as grams

Sample	P						O						
Kind of Paper	MANILA						COATING						
Tests Conditions	64% Rel. Humidity at 81° F.												
Basis Weight, lb. (24 x 36—500)	92						30½						
Direction	Machine				Cross		Machine					Cross	
Number of Strips	1	2	3	4	2	4	4	8	12	16	20	8	12
	168	343	543	746	185	372	33	65	111	160	218	38	52
	164	335	552	754	185	363	33	63	108	154	210	..	53
	189	351	563	742	176	372	..	..	....	....	....	..	..
	164	351	519	686	185	363	..	..	....	....	....	..	..
	172	335	515	714	172	372	..	..	....	....	....	..	..
	180	355	535	718	....	....	..	..	....	....	....	..	..
	180	368	539	730	....	....	..	..	....	....	....	..	..
	180	355	511	722	....	....	..	..	....	....	....	..	..
	164	355	554	722	....	....	..	..	....	....	....	..	..
	172	355	523	734	....	....	..	..	....	....	....	..	..
Average	173	350	535	727	181	368	33	64	110	157	214	38	53
Average Deviation	7	8	15	14	....	....	..	..	....	....	....	..	..
Per cent Average Deviation	4.0	2.3	2.7	1.9	....	....	....	....	....	....	....	....	....
Grams Per Strip	173	175	178	182	91	92	8.25	8.0	9.17	9.82	10.70	4.75	4.42

TABLE 4

EFFECT OF INACCURATE ALIGNMENT ON ACCURACY OF STIFFNESS TEST

Stiffness expressed as grams.

Sample	R		S	
Kind of Paper	FOLDER		MANILA	
Test Conditions	68% Rel. Humidity at 74° F.		64% Rel. Humidity at 84° F.	
Basis Weight, lb. (24 x 36—500)	150		92½	
Direction	Machine		Cross	
Number of Strips	1		2	
Alignment	Accurate	16° Off.	Accurate	17° Off.
	539	470	202	225
	511	519	177	212
	495	543	184	201
	437	547	178	205
	507	511	181	189
	500	515	181	206
	515	442	190	220
	523	559	184	175
	503	458	171	...
	511	523	...	...
Average	504	509	183	204

TABLE 5

EFFECT OF MOISTURE CONTENT ON STIFFNESS

Relative Humidity Per cent	Moisture Content of Paper Per cent	Stiffness	
		Machine Per cent	Cross Per cent
Oven Dry	none	62.7	25.1
65	7.6	55.2	23.0
80	9.1	34.0	13.1

within quite wide limits, has little effect on the test results. A length of 2.5 inches was adopted as suitable. The diameter of the rod, (C) which pulls the paper down affects the clearance through which it must pass. Two sizes were tried, a ⅜-inch diameter and a ⅛-inch diameter rod. It seemed a little surprising that there was practically no difference in the results obtained. Consequently, the ⅛-inch rod was adopted.

A careful analysis has been made of the precision obtainable with this instrument. Table 1 shows a series of stiffness tests on several kinds of paper, run at constant relative humidity. Ten determinations were made on each sample in both the machine and across directions. The machine direction test follows the approved convention of referring to the bending of the fibers lying in the machine direction. The percent average deviation for this series falls between 0.9 and 5.7 for the different samples, averaging 2.9. This indicates that five determinations in each direction should be ample for most purposes.

The stiffness of wire versus felt side and the number of strips to be tested simultaneously are of interest. Table 2 shows tests on two samples illustrating the slight difference in stiffness between a strip of paper bent toward the wire side and away from it. It is possible that appreciable differences may be found in a badly two-sided sheet. For general testing it seems desirable to eliminate this factor as far as possible by testing two strips simultaneously with their wire sides together. The effect of the number of strips tested simultaneously is shown in Table 3. The grams stiffness per strip has been calculated in the last line of the table. This value is relatively constant for the 92 lb. manila, increasing very slightly with the number of strips used in the test. On the lighter, more flexible groundwood paper the stiffness per strip increases with the number of strips tested. This is to be expected because a larger number of strips will prevent bending due to a weak spot in one. For a reliable stiffness determination, the number of strips tested simultaneously should be sufficient to put the machine direction values in the upper half of the scale of the instrument, testing an even number of strips with the wire sides together where more than one strip is required. The same number of strips should be used for the cross direction tests.

While the strips should be carefully centered in the instrument before testing, the amount of error due to inserting the strips on a bias is not serious as shown in Table 4, where the strips were placed intentionally at an angle of about 16 degrees from the correct alignment. The error is negligible in the machine direction and about 10 per cent high in the cross direction under the worst conditions.

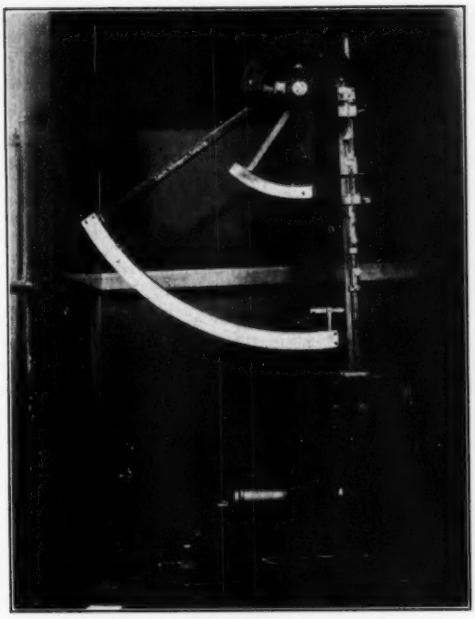

FIG. 5

Tensile machine showing stiffness tester.

A few examples will serve to illustrate the applications of this stiffness test. Humidity conditions are known to have a marked effect on the physical properties of a sheet of paper. At higher humidities the paper holds more moisture and becomes softer. This effect is shown by the tests given in Table 5 on the same sheet of paper under varying humidity conditions. Per cent stiffness has been calculated arbitrarily for these tests as ten times the ratio of scale reading to basis weight. The stiffness of the oven dry sheet is practically twice the stiffness at 80 per cent relative humidity.

TABLE 6

EFFECT OF PULP FURNISH ON PAPER STIFFNESS

Sample	U	V
Furnish:		
Unbleached Sulphite	67%	84%
Groundwood	33%	16%
Alum	1.2%	0.8%
Size	0.9%	0.6%
Physical Tests:		
Basis Weight	42½ lbs.	41½ lbs
Caliper—inches	0.0042	0.0035
Per cent Mullen	73.2	72.8
Per cent Tear—Machine	106	112
Per cent Tear—Cross	92	107
Per cent Stiffness—Machine	32.2	21.2
Per cent Stiffness—Machine	32.2	21.2
Per cent Stiffness—Cross	8.3	7.1

TABLE 7

EFFECT OF FILLER ON STIFFNESS

Sample	X	Y
Furnish:		
Bleached Sulphite	100%	100%
Filler	5.5%	11.0%
Alum	1.7%	1.9%
Size	1.5%	1.8%
Physical Tests:		
Basis Weight	55½ lbs.	54 lbs.
Caliper—inches	0.0045	0.00375
Per cent Mullen	59.1	60.6
Per cent Tear—Machine	111	115
Per cent Tear—Cross	104	103
Per cent Stiffness—Machine	35.2	25.0
Per cent Stiffness—Cross	16.2	13.0
Per cent Moisture	8.3	8.3

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The pulp furnish of a paper has a noticeable effect on its stiffness. Two papers of similar kind and weight, but with different proportions of unbleached sulphite pulp and groundwood showed marked differences in stiffness (Table 6). The bulkier sheet of higher groundwood content had the higher stiffness.

The effect of filler content on stiffness is shown in Table 7. The balance of the furnish of these two papers is practically identical for each. It is particularly interesting that the Mullen and tear tests show no difference between the two papers, whereas the stiffness test shows that the paper with the higher filler content is distinctly softer and more pliable.

The grain of a sheet of paper can be measured in various ways such as tear, tensile strength, stretch and folding endurance. Stiffness offers a simple method of showing up "graininess". A sample of folder stock was analyzed for "graininess" by cutting strips at various angles to the machine direction and determining their stiffness. The results are presented in Fig. 3.

In the development of a paper for converting purposes, it was found that a certain soft sheet yielded the qualities desired. The physical tests of this sheet were duplicated in a trial mill run, but the finished product failed to handle satisfactorily in the automatic machinery in which it was tried. Stiffness tests on both samples revealed that the mill run was fifty per cent stiffer than the problem required. A second trial run was made, in which the stiffness was reduced to give a sheet of the desired pliability, and the product functioned perfectly.

In conclusion, stiffness is a fundamental property of paper, of considerable interest to the users, converters and producers of paper. It can be measured accurately and satisfactorily in a relatively simple instrument. The information yielded by this stiffness test is not shown up in any of the standard tests for strength or endurance.

Steam Turbine Plants in the Paper Industry*

By Samuel M. Green[1]

Abstract

The power required in manufacturing paper is a large item in the cost of the product. Power may be made at the mill or purchased from an outside source. The most economical method of obtaining power can only be determined from a complete knowledge of the conditions existing in each individual case, because of the great variety of product, size of plant and prices at which power may be made or purchased.

Introduction

The paper industry generally requires large amounts of power for driving the plant and steam for cooking, drying, heating and other processes at pressures not exceeding 20 pounds. In comparatively few instances, chemical pulp is manufactured at the paper plant, requiring steam at 100 to 125 pounds pressure.

If process steam required at comparatively low pressure, is generated at high pressure and is reduced to low pressure by passing it through a steam turbine or engine, power will be produced at a price with which no other source of power can compete.

For example: If steam is generated at 250 pounds pressure and 150 deg. F. superheat, is passed through a steam turbo-generator having a steam rate of 30 pounds per kw. hour, and is used in processes at 20 pounds pressure, each 30 pounds of steam entering the turbine will contain about 38,670 B.t.u., and as it leaves the turbine at 20 pounds pressure it will contain 3,850 B.t.u. less, this heat being required to produce one kw. hour., i. e., 3,415 B.t.u. (the heat equivalent of 1 kw.) and 435 B.t.u., the heat required for unrecoverable losses such as radiation, bearing friction and electrical losses in the generator. Therefore, about 10 per cent of the heat in the steam is used to produce power and 90 per cent is left for processes.

If boilers are operating at 80 per cent efficiency, using coal with a heat value of 14,000 B.t.u. per pound and at $6 per net ton, then the cost of coal to produce one kw. hour will be one mill ($0.001) as shown by the following formula:

$$\frac{\text{3850 B.t.u. (heat to produce one kw. hr.)} \times \text{3 mills (coal cost per pound)}}{\text{14440 B.t.u. (heat in coal)} \times \text{80 per cent (boiler efficiency)}} = \text{1 mill}$$

If a plant purchased power, boilers carrying 150 pounds pressure and no superheat might be a proper equipment. If, however, the plant manufactured power, then higher pressure boilers and superheaters would be desirable in order to obtain the maximum amount of power from the steam used by the plant.

The investment for generation of power, therefore, will be not only the cost of the turbo-generator and auxiliaries, but the extra cost for higher pressure boilers, superheaters, high pressure piping to the turbine, low pressure piping to the mill, and building to house the turbine.

Cost of Power Generation

The following hypothetical case will illustrate with reasonable accuracy the cost of generating current when all of the exhaust steam is used in processes.

Cost of installing a 1500 kw. turbo-generator, including foundations, building, switchboard, crane, wiring, superheaters, and extra for high pressure boilers and piping	$100,000.00
Cost of transformer station if current is purchased	25,000.00
Net investment in turbine plant	$75,000.00

The capital charge at 15 per cent per annum, covering interest, depreciation, insurance and taxes, will be $11,250.00 per year.

The cost of turbine operating labor for one man on each eight-hour shift will not exceed $5,000 per year. Boiler room labor will not be increased.

(I believe that if current were purchased, practically the same amount of labor would be required to attend to the main switchboard, but have included labor in the total cost of manufacturing.)

If a turbine operates 7,000 hours per year at an average load of 1200 kw. and maximum demand of 1400 kw., there will be generated 8,400,000 kw. hours and the capital and labor charges will be 1.32 mills and 0.6 mills respectively.

The total cost of generating one kw. hour is, therefore, 2.92 mills and the total cost for 8,400,000 kw. hours is $24,528.

If a 1500 kw. condensing turbo-generator were installed to operate under the same steam and superheat conditions and at 28" vacuum, the investment would be increased because additional boiler and condenser equipment would be required and the boiler room labor cost might have to be increased, although this is problematical.

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Contribution of the TAPPI Heat and Power Committee.
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The net investment would be about	$120,000.00
The yearly capital charge would be, at 15 per cent	$ 18,000.00
The capital charge per kw. hour would be	2.15 mills
The labor charge per kw. hour, adding to the labor charge mentioned above 50 per cent for additional men in boiler room, would be	.9 mills
The fuel charge per kw. hour, with all steam passing to the condenser, would be about	4.2 mills
The total cost per kw. hour is therefore	7.25 mills
Or, the total cost to generate 8,400,000 kw. hours plus the power to operate the condenser; i.e., 200,000 kw. hours, will be	$62,350.00

To compare the cost of purchased current with the foregoing, assume that a contract stipulates that current will be furnished on the secondary side of the transformers at $18 per year for maximum demand and at an energy charge of 8 mills per kw. hour. The cost of purchasing 8,400,000 kw. hours would be $92,400 per year.

Recapitulation:	
Cost of purchasing 8,400,000 kw. hours	$92,400.00
Cost of manufacturing 8,400,000 kw. hours by turbo-generator when all steam is used in processes	$24,528.00
Net saving over purchased current	$67,872.00
Net return on investment	90 per cent
Cost of manufacturing 8,400,000 kw. hours by turbo-generator when all steam is condensed	$62,350.00
Net saving over purchased current	$30,050.00
Net return on investment	25 per cent

Between the plant that can produce all the power required by using process steam first through a turbine and the plant that produces all power required by use of a condensing turbine, there are plants that use process steam but in less amounts than are required to produce the power. In such cases, the extraction condensing turbine should be used and the cost of producing power will lie between the cost for power when all power can be made by process steam and when all power is made by a condensing turbine.

Continuous Service

Advocates of purchased current claim that to insure continuous power if it is manufactured at the mill, duplicate turbine equipment should be installed and that it is unwise to invest large amounts of capital which must be carried if the mill is idle.

In my opinion, one turbine will give more continuous service than can be obtained from public service lines, owing to outside interruptions on such lines. Ordinary repairs can be made at times when the mill is idle, and disaster to a turbine can to a degree, be provided for by insurance. I know of many large plants that have operated satisfactorily for many years without duplicate power generating equipment.

The claim in regard to investment of capital is not of importance. Purchased current contracts usually require the purchaser to pay a minimum charge whether the mill operates or not. The purchased current demand charge in the above case would probably cost at least $14,000.00 per year.

The following description of specific cases may be interesting.

No. 1:

A Massachusetts paper company operates two mills located about 1000 feet apart, referred to as No. 1 and No. 2 Mills. The No. 1 Mill was equipped with a 750-kw. extraction condensing turbo-generator and two variable speed steam engines. The steam extracted from the turbine and exhausted from the engines was used in processes. The No. 2 Mill was equipped with a steam engine driving a belted generator, the steam supply being furnished from the No. 1 Mill boilers. The exhaust steam is used for processes. This arrangement required an engine room crew at each mill.

In addition to the power made, current in an amount of about 5,920,000 kw. hours was purchased. The contract specified that the first 100,000 kw. hours per month should be at 3 cents per kw. hour whether or not current was used, and for greater amounts used per month there was a sliding scale which resulted in an average rate for the amount purchased of 16.3 mills per kw. hour, or the total charge per year under the contract was $96,800. The cost of purchased current alone added to the cost of paper produced $4.14 per ton. The purchaser had the right to operate all steam driven equipment at the mill when the contract was made and to install any additional power equipment if the exhaust steam could be used in processes.

A study of the plant operation was made to find means, if possible, of eliminating the great burden of purchased current.

It is evident that under the very onerous terms of the purchased current contract 1,200,000 kw. hours had to be used at a cost of $36,000 per year.

New generating apparatus would be required to produce the balance of the purchased current; i. e., 4,720,000 kw. hours plus the power generated by the No. 2 Mill engine; i. e., 2,840,000 kw. hours, a total of 7,560,000 kw. hours, or an average load of about 1200 kw.

A 1500 kw. non-condensing turbine using steam at 240 pounds pressure and 150 deg. F. superheat and exhausting against 20 pounds back pressure has a steam rate of about 30 pounds per kw. hour, or, to generate 1200 kw., 36,000 pounds of steam would be used. As processes require 49,500 pounds, there would be bled from the 750 kw. turbine 13,500 pounds.

A 1500 kw. non-condensing turbine was installed at a cost of about $65,000.

Making proper allowance for capital charge, extra fuel required by operating the 750 kw. turbine with more steam flowing to the condenser, and labor and repairs saved at No. 2 Mill, the yearly saving is about $50,000 per year.

When purchased current contract expires, the 750 kw. turbo-generator will be replaced by an extraction condensing 1500 kw. turbo-generator and all current will then be made at the plant, at a probable further saving of $20,000 per year.

No. 2:

A Massachusetts paper company operates a mill containing two paper machines. The boilers are limited to 150 pounds gage pressure. The power equipment consists of one steam engine driving one paper machine; a direct-connected engine generator driving the constant speed equipment of one paper machine (this engine was installed so as to eliminate constant interruptions when driven from purchased current); a variable speed engine; a direct-connected engine generator operating in synchronism which purchased current and regulated by variation of pressure in the process line; a 500 kw. condensing turbo-generator used only in case of emergency. All of the engines exhaust against 15 pounds gage pressure and practically all of the steam required in processes is supplied through these engines.

The purchased current contract terms were $1.40 per month per kw. maximum demand and an energy charge of 10 mills per kw. hour. During short time operation, due to business conditions, the cost of purchased current had risen from about 16 mills to 18 mills per kw. hour, principally because of the maximum demand charge.

As the purchased current contract had about eighteen months to run, an estimate of the cost of manufacturing all current at the mill was prepared. It was submitted to the company supplying the purchased current and they submitted a new contract, the terms of which are: The

maximum demand to be the demand as shown by meters, less 600 kw.; the cost of maximum demand to be $1 per kw.; the energy charge to average about 10 mills per kw. hour.

Monthly bill under old contract	$3,361.00
Monthly bill under new contract	2,256.00
Under present conditions, reduction per month	$1,105.00

Owing to business conditions, it was thought best to accept this new contract.

No. 3:

A Massachusetts company owns a plant that requires a large amount of power and process steam. They purchase all of the power required at a yearly cost of about $75,000 under a contract having a maximum demand charge of $2 per kw. per month and energy charge of 7 mills per kw. hour. The contract could be terminated on one year's notice by either party.

The boilers were equipped with superheaters and the allowed pressure was 200 pounds. An investigation disclosed the fact that there was always more steam (both night and day) required for processes, at 15 pounds pressure, than would be required to generate all of the power. It was found that if a 1500 kw. non-condensing turbine were installed there would be a net return on the investment of 66 per cent or $52,000 per year. When these facts were determined, the purchased current contract was terminated to take effect at the expiration of one year.

The company supplying the current thereupon offered to supply all of the current required at a flat rate of 8 mills per kw. hour for a term of 22 months. This offer showed a yearly saving of at least $27,000 and, owing to business conditions, it was decided to accept this offer and during its continuance to make a complete investigation of the use of process steam and then determine the best equipment to install to make all power required.

No. 4:

A small Massachusetts paper mill generates about 4,000 pounds of steam per hour at 125 pounds pressure and uses it for processes at 10 pounds pressure. The power required is purchased at a flat rate of 17.5 mills per kw. hour.

If 4,000 pounds of steam at 125 pounds pressure is passed through a turbine and delivered at 10 pounds pressure and used in processes, at least 50 kw. can be generated, or, in 7,000 hours, 350,000 kw. hours, which will cost for capital and fuel not more than 4 mills per kw. hour, or, per year, $1,400. The cost of purchased current would be $6,125. The saving will be $4,725 per year or more than 100 per cent on the investment.

The following data have recently been collected and may be of interest:

	Mill No. 1	Mill No. 2	Mill No. 3	Mill No. 4	Mill No. 5
Kind of paper made	Bond and ledgers	Bond and ledgers	Glassine	Book and specialties	Coated blanks
Tons of paper made	875	1,009	2,859	23,564	8,336
Power purchased, kw.hr.	800,000	746,900	1,785,299	1,200,000	1,991,500
Rate per kw.hr.	17.5 mills	20 mills	10 mills	30 mills	16 mills
Power generated by steam (kw.hr.)	none	none	none	13,014,000	2,988,300
Power generated by hydro (kw.hr.)	384,000	1,122,840	2,093,700	none	160,000
Power per ton paper made (kw.hr.)	1.360	1,979	1,357	603	616
Net tons coal used	1.339	1,990	4,720	21,450	

Cost of Power Generated by Process Steam

It is impossible to determine without much study what the hydro power developed by these mills costs. It is, however, possible to arrive at an approximate figure as to the cost of the kw. hours that might be developed by process steam in the No. 1, 2 and 3 mills where none is now developed.

No. 1 Mill:

The data cover a period of slack business.

The steam equipment consists of H.R.T. boilers operating at about 65 per cent efficiency and 125 pounds pressure. Assume that 20 per cent of the total coal burned is for banking, then about 1,070 tons were used to produce steam for processes. The amount of steam produced by this amount of coal would develop not less than 300,000 kw. hours at a cost of approximately $1,200. This would reduce the cost of purchased current $4.000 per year, which would be about 100 per cent upon the investment.

No. 2 Mill:

The steam equipment is the same as in No. 1 Mill except that boilers can carry 150 pounds pressure. On the same basis as above, 450,000 kw. hours can be developed at a cost of approximately $1,800 per year. This would reduce the cost of purchased current $7,200 per year, which would be about 100 per cent upon the investment.

No. 3 Mill:

The steam equipment is the same as No. 1 and No. 2 Mills but boilers operate at about 75 per cent efficiency. It is problematical as to what might be saved as the rate for purchased current is comparatively low and probably would be raised if all of the current required were not purchased.

No. 4 Mill:

This mill makes a large amount of power by steam and pays a very high rate for such current as is purchased owing to an unfortunate purchased current contract. All of the process steam is used to produce power except 1,200,000 kw. hours which must be purchased under the terms of the contract.

No. 5 Mill:

This mill makes a large amount of power by steam and has recently obtained a new purchased current contract by showing an estimate of the cost of power made at the plant. The new rate will average about 11.3 mills, whereas it was 16 mills.

I have used in the hypothetical cases boiler pressures of 250 pounds. Higher boiler pressure may be desirable in cases where process steam is used at 100 pounds or at 20 pounds where all of the steam delivered by a turbine cannot be used in processes.

Representative guarantees on steam rates for non-condensing and condensing turbines of 1500 kw. capacity at 250 and 400 pounds gage pressure, 150 deg. F. superheat and 20 pounds back pressure or 28″ vacuum are:

Load kw.	250 pounds gage 150 deg. F. S.H. 20 pounds B.P.	400 pounds gage 150 deg. F. S.H. 20 pounds B.P.	250 pounds gage 150 deg. F. S.H. 28-inch vac.	400 pounds gage 150 deg. F. S.H. 28-inch vac.
1500	28.25	23.95	13.25	12.64
1125	29.6	25.1	13.7	13.2
750	32.3	27.4	14.6	14.4

This shows that in case a 1500 kw. non-condensing turbine operated at 1125 kw. load and 20 pounds back pressure, there would be 33,300 pounds of steam available for processes, and if it operated at 400 pounds pressure 28,237 pounds available. If there was only 29,000 pounds of steam used by processes, then the 400 pound pressure would be best.

Conclusion

In this paper, I have endeavored to indicate methods that may be used to reduce the cost of power in the paper industry. No recommendations can be made that will apply to all cases. Each must be decided after study of each individual case.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING FEBRUARY 25, 1933

CIGARETTE PAPER

Campagne Paper Corp., Liberty, Havre, 80 cs.; American Tobacco Co., Liberty, Bordeaux, 100 cs.; American Tobacco Co., Lafayette, Havre, 100 cs.; American Tobacco Co., Pr. Roosevelt, Havre, 100 cs.: De Manduit Paper Corp., Pr. Roosevelt, Havre, 345 cs.

WALL PAPER

Universal Carloading Co., Grandon, Bremen, 7 cs.; D. C. Andrews & Co., Majestic, Southampton, 1 cs.; Hudson F'd'g Co., Majestic, Southampton, 1 cs.; R. F. Downing & Co., Aurania, Southampton, 4 bls.; A. Ballin, Hamburg, 3 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Aurania, Southampton, 7 bls.; M. Owen, Lafayette, Havre, 1 cs.

NEWS PRINT

Jay Madden Corp., Grandon, Bremen, 137 rolls; Jay Madden Corp., Stuttgart, Bremen, 273 rolls; Perkins Goodwin & Co., Stuttgart, Bremen, 67 rolls; Baldwin Paper Co., A. Ballin, Hamburg, 110 rolls; Perkins Goodwin & Co., A. Ballin, Hamburg, 388 rolls; Jany Madden Corp., Pr. Roosevelt, Hamburg, 130 rolls.

PRINTING PAPER

C. Steiner, Stuttgart, Bremen, 4 cs.; Japan Paper Co., Stuttgart, Bremen, 11 cs.; Japan Paper Co., Conti di Savioa, Genoa, 2 cs.

WRAPPING PAPER

Walker Goulard Plehn Co., Grandon, Bremen, 336 rolls; Gevaert Co. of America, Pennland, Antwerp, 7 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Pennland, Antwerp, 18 cs., 49 bls.; H. Reeve Angel & Co., Inc., Aurania Southampton, 10 cs.; C. Schleicher & Schull Co., Pr. Roosevelt, Hamburg, 6 cs.

DRAWING PAPER

Keuffel & Esser Co., Aurania, Southampton, 2 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Aurania, Southampton, 1 cs.

DECALCOMANIA PAPER

L. A. Consmiller, Bremen, Bremen, 4 cs.; Sellers Transportation Co., Bremen, Bremen, 9 cs.; Sellers Transportation Co., A. Ballin Hamburg, 2 cs.; Phoenix Shipping Co., A. Ballin, Hamburg, 1 cs.

TRANSFER PAPER

Manhattan Dacalcomania Co., Bremen, Bremen, 2 cs.; J. H. & G. B. Siebold, Pr. Roosevelt, Hamburg, 1 cs.; Fuchs & Lang Manfg Co., Pr. Roosevelt Hamburg, 9 cs.

BASIC PAPER

F. C. Strype, Grandon, Bremen, 2 cs.

PARCHMENT PAPER

International Accep. Bank, Grandon, Bremen, 11 cs.

COLORED PAPER

S. Gilbert, Grandon, Bremen, 1 cs.; F. Murray Hill Co., Pr. Roosevelt, Hamburg, 3 cs.

SURFACE COATED PAPER

Globe Shipping Co., Stuttgart, Bremen, 89 cs.; Gevaert Co. of America, Pennland, Antwerp, 57 cs.; P. C. Zuhlke, Bremen, Bremen, 10 cs.; Phoenix Shipping Co., A. Ballin, Hamburg, 4 cs.

METAL COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 13 cs.; K. Pauli Corp., A. Ballin Hamburg, 22 cs.

COATED PAPER

Chas. Happel, A. Ballin, Hamburg, 2 cs.

PHOTO PAPER

J. J. Gavin, Majestic, Southampton, 5 cs.

MARBLE PAPER

Borden Riley Paper Co., Pennland, Antwerp, 1 cs.

LITHO PAPER

General Printing Ink Corp., Pr. Wilson, Canton, 20 cs.

ENVELOPES

Beckhard Simford Co., Stuttgart, Bremen, 1 cs.; Beckhard Simfred Co., Bremen, Bremen, 15 cs.; Beckhard Simfred Co., A. Ballin, Hamburg, 6 cs.

WRITING PAPER

J. P. Morgan & Co., Aurania, Southampton, 1 cs.; S. Stern Stiner, Aurania, Southampton, 1 cs.

STENCIL PAPER

Frankel Carbon & Ribbon Manfg Co., Majestic, Southampton, 2 cs.; ———, Aurania, Southampton, 1 cs.

CARD BOARD

Coty Processing Co., Lafayette, Havre, 13 cs.

PAPER BOARD

Colmar Paper Corp., Pennland, Antwerp, 6 cs.; Corday Import Co., Lafayette, Havre, 3 cs.

PASTE BOARD

———, Bremen, Bremen, 62 cs.

GUMMED PAPER

E. B. Baehr & Sons, Pr. Roosevelt, Havre, 3 cs.

MISCELLANEOUS PAPER

Globe Shipping Co., Stuttgart, Bremen, 1 cs.; L. A. Consmiller, Stuttgart, Bremen, 2 cs.; Henschel, Naeve & Co., Stuttgart, Bremen, 2 cs.; Keller Dorian Paper Co., Lafayette, Havre, 1 cs.; P. H. Petry & Co., Lafayette, Havre, 4 cs.; P. Puttman, Lafayette, Havre, 1 cs.; Japan Paper Co., Pr. Wilson, Kobe, 24 cs.; H. Reeve Angel & Co. Inc., Pr. Wilson, Yokohama, 7 cs.; Schenker & Co., Pr. Roosevelt, Hamburg, 2 cs.

RAGS, BAGGINGS, ETC.

G. J. Schuster, Oriente, Havana, 4 bls.; G. A. Henshaw & Son, Aurania, Southampton, 34 bls. paper stock.

CHINA CLAY

C. T. Wilson Co., Laurentic, Liverpool, 25 casks.

CASEIN

D. C. Andrews & Co., A. Ballin, Hamburg, 60 bags.

OLD ROPE

Continental Bank Trust Co., Habana, Bilbao, 180 coils; Banco Coml Italiane Trust Co., Habana, Coruna, 35 coils; Bank of N. Y. Trust Co., Amer. Merchant, London, 98 coils.

WOOD PULP

Castle & Overton, Inc., Grandon, Bremen, 1020 bls. wood pulp; Gottesman & Co. Inc., Stuttgart, Bremen, 1000 bls. Sulphate; ———, Stuttgart, Bremen, 2500 bls. sulphate; E. M. Sergeant & Co., United States, Oslo, 600 bls. chemical pulp 101 tons; J. Andersen & Co., United States, Oslo, 150 bls. sulphite 25 tons; Castle & Overton, Inc., A. Ballin, Hamburg, 840 bls. wood pulp, 168 tons; Parsons & Whittemore, Inc., Korsholm, ———, 204 bls. sulphite; Parsons & Whittemore, Inc., Drottningholm, ———, 612 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 25, 1933

J. H. Faunce, Inc., Caledonia, Glasgow, 66 rolls pulp; Parsons & Whittemore, Inc., Iserholm, ——, 500 bls. sulphite.

BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 25, 1933

Parsons & Whittemore, Inc., City of Baltimore, ——, 1000 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING FEBRUARY 25, 1933

Parsons & Whittemore, Inc., Iserholm, ——, 500 bls. sulphite.

GALVESTON IMPORTS

WEEK ENDING FEBRUARY 25, 1933

——, Grandon, Bremen, 150 bls. chemical pulp.

Whitaker Paper Co. Report

Whitaker Paper Company, Cincinnati, Ohio, reports for year ended December 31, 1932, net loss of $122,671 after charges and taxes. This compares with net profit of $16,012, equivalent to $1.68 a share on 9,546 shares of combined 7 per cent cumulative shares of first and second preferred stocks in 1931. Net sales for year ended December 31, 1932, totaled $6,239,589 against $8,906,894 in preceding year.

Current assets as of December 31, 1932, including $458,676 cash, amounted to $2,140,378 and current liabilities were $201,960. Total assets were $4,142,670 and earned surplus $221,246. Capital stock amounts to 9,418 shares of preferred and 30,854 no-par shares of common.

Nicolet Paper Co.'s Taxes

APPLETON, WIS., February 27, 1933—As a means of conserving its cash reserves, the Nicolet Paper Company, DePere, Wis., has requested from the city council the privilege of paying its municipal taxes of $9,000 in installments. The company had a meeting with city officials at which a request was made to pay one-sixth of the amuont each month. It was pointed out that the mill had been able to keep a hundred persons employed and maintain a payroll of $100,000 anually. The severe conditions in the glassine industry were cited as the principal reason. A decision is to be given soon. The request was presented on behalf of the company by Harry Kuhns, manager.

Albany Busy With Russian Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., February 11, 1933.—All previous navigation records for the local port terminal have been surpassed this winter and indications are that there will be no difficulty experienced in keeping the Hudson River open to allow foreign consignments of pulpwood to reach here. Four vessels carrying several thousand tons each from Russia and Sweden arrived during the past month for mills in northern New York and all available space on the docks is being used. Another vessel carrying an importation of the product from Russia is scheduled to arrive this week which will be followed by others. Among the concerns which are depending on the facilities of the port in securing the foreign product are the International Paper Company and Union Bag and Paper Company. The rapid development of the business transacted at the port of Albany has resulted in the decision to start expansion plans in the spring.

J. J. Herb Announces Expansion Program

Announcement is made by John J. Herb, president of Pacific Coast Paper Mills, Bellingham, Wash., of a new expansion program to be launched shortly by the company. Through extensive advertising throughout the Northwest states and an aggressive merchandising policy, the mill plans to materially extend its market for bathroom tissue. This product, which was introduced only last September, has made rapid strides in sales and in popular favor, states Mr. Herb. The commercial outlet for the product includes the states of Washington, Oregon, California, on the Pacific coast and Utah and Colorado in the Rocky Mountain area. The Philippine Islands and Hawaiian Islands are also proving a ready market, as is China.

Only the finest of Pacific Northwest pulps are used in the manufacture of this product, Mr. Herb said.

Pacific Mills to Start Board Mill

F. N. Youngman, vice-president and general manager of Pacific Mills Limited, announces that his company will commence operation of its new fiber board plant early in March. New equipment is at present being installed in the company's pulp and paper production plant at Ocean Falls for the manufacture of the fiber board which when completed will be shipped to the new addition to the paper converting plant in Vancouver for manufacture into fiber boxes. As soon as the work at Ocean Falls is completed work will be got under way.

Mr. Youngman stated that his company had spent approximately $150,000 in Vancouver during recent months in preparation for the production of new fiber boxes which will be used by fish and fruit canners.

Bush Joins Carter, Rice & Co.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 20, 1933.—In keeping with its program of expansion in the wrapping paper department of Carter, Rice & Co., Streeter Bush, formerly associated with the paper jobbing trade in the Middle West, has been appointed assistant sales manager of the wrapping paper department.

Mr. Bush is equipped with a well rounded manufacturing, sales and managerial experience, having been director of the Paper Trade Institute in Chicago and manager of the wrapping paper department of the Star Paper Company, Kalamazoo, Mich., along with seven years of active sales and mill experience.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

ALUMINUM SULPHATE
(PAPER MAKERS' ALUM)

THE Standard Purity of this Company's product is maintained in an uncompromising degree, regardless of whether successive deliveries are from one or various of the Company's Works.

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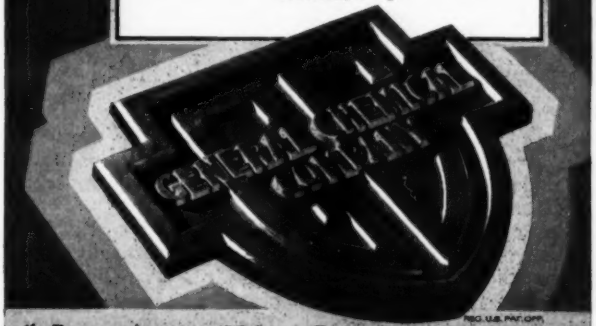
40 Rector Street, New York, N. Y.
Cable Address: Lycurgus, N. Y.
Sales Offices: Buffalo, Chicago, Cleveland, Denver, Los Angeles, Philadelphia, Pittsburgh, Providence, San Francisco, St. Louis.
In Canada: The Nichols Chemical Company, Ltd. Montreal, P. Q.



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West Virginia Pulp and Paper Company

230 Park Ave., New York
35 East Wacker Drive, Chicago
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Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
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Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Cover and Music Papers, Index Bristol, Post Card and Label Papers

High Grade Coated Book

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KRAFT WRAPPING AND KRAFT ENVELOPE
Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

MILLS:

Mechanicsville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
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TI MACHINE STEEL
SHELL BURRS

MANUFACTURED IN STANDARD SIZES SUITED TO THE PAPER TRADE

We invite your inquiries

OTHER SPECIALTIES

WARREN IMPROVED CALENDER With flexible blades, Universal Adjustment and Control, Patented — DOCTORS

WARREN IMPROVED DOUBLE DRUM— — WINDER

BALL HYDRANT for Stock Circulating Systems — VALVES

TI MACHINE Semi-Steel Sectional 3-4-5-6-7 Cuts per Inch — BURRS

AND OTHER PAPER MILL MACHINERY

MANUFACTURED BY
TICONDEROGA MACHINE WORKS
TICONDEROGA, N. Y.

SEND FOR BULLETINS—ASK FOR PRICES.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 1, 1933

Conditions in the local paper market are practically unchanged. Demand for the various standard grades of paper is irregular. However, warehouse stocks are generally believed to be below normal and the price trend is somewhat steadier. Sales forces of the leading paper organizations continue very active.

The news print paper market is quiet. Demand from the publishers is light. Production in the United States and Canada is being maintained in sufficient volume to take care of current requirements. Shipments are moving in moderate volume. The price situation continues unsatisfactory.

Demand for the various grades of paper board is fairly persistent. Box board operations are practically keyed to consumption. Prices are steady. The fine paper market is firmer and higher prices for book paper are anticipated, in some quarters. The coarse paper market is marking time and no radical price changes have been reported.

Mechanical Pulp

The ground wood pulp market is steady. While demand for both domestic and imported mechanical pulp is limited, the industry continues in a sound statistical position, due to curtailment of operations, both at home and abroad. Quotations are generally holding to schedule and reports of shading are infrequent.

Chemical Pulp

Steadiness prevails in the chemical pulp market, although the prevailing demand is somewhat listless. Some improvement in the volume of trading is confidently anticipated in the near future. Inquiries for future account are fairly numerous, some of which should materialize into good orders. The price situation continues unchanged.

Old Rope and Bagging

The old rope market is in a slightly improved position, due to limited offerings. Demand for both domestic and imported old manila rope is slightly better. Small mixed rope however, continues quiet. No radical changes have been reported in the bagging market. Both scrap and gunny bagging are fairly active.

Rags

Paper mill demand for the various grades of domestic cotton rags is restricted. With the exception of a few grades, cotton cuttings continue dull. Roofing grades are beginning to arouse more interest. Prices are strictly nominal. The position of the imported rag market is practically unchanged.

Waste Paper

Board mill demand for the lower grades of paper stock is persistent. With offerings decidedly scarce prices are firmer and strictly folded news and No. 1 mixed paper are displaying particular strength. The better grades of waste paper are steady. Hard and soft white shavings are holding up well.

Twine

The twine market continues spotty. Most of the business transacted during the past week was along routine lines. With the approach of the Eastertide holidays it is hoped that business will become more buoyant in the near future. Prices are rather spotty, due to keen competition for desirable orders.

Senate Asks Pulp Investigation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 1, 1933—The Senate has passed a resolution, introduced by Senator Dill of Washington, calling upon the United States Tariff Commission for an investigation of competitive conditions in the domestic and foreign pulp situation. The resolution is as follows:

Resolved, that the Tariff Commission be, and is hereby, directed to investigate and report to the Senate at as early a date as possible the competitive conditions as they relate to the wood-pulp industry of the United States and particularly in relation to pulp timber, pulpwood, and mechanical and chemical wood pulp produced in Canada, Sweden, Finland, and Norway, said investigation to be based upon the costs in the various countries as computed on the standard gold value of United States currency used in payment for labor and other costs in domestic industry.

The commission is further directed to make such use of the data and findings of the United States Conservation Board which has conducted a complete survey in the domestic field of the pulp business during the past few years as will be useful in making its report to the Senate.

Samuel R. Whiting Heads Collins Mfg. Co.

HOLYOKE, Mass., February 21, 1933.—Samuel R. Whiting, Jr., recently elected president of the Collins Manufacturing Company is the grandson of the late Congressman William Whiting who founded the Whiting Paper Company of this city and acquired the Collins Company many years ago. Joseph P. Prescott, who was elected treasurer, is a great-grand-son of Joseph C. Parsons, founder of one of the oldest paper mills in the valley, the Parsons Paper Company of this city. His grandfather Charles B. Prescott was treasurer of the Valley Paper Company.

Eaton Paper Co. on Full Schedule

ADAMS, Mass., February 27, 1933—Operation of the Zylonite plant of the Eaton Paper company is now on a full-week basis as a result of increased orders.

Approximately 30 additional employees were placed at work at the plant today. Most of these new employees are women and girls who were assigned work in the finishing and sorting department.

The total working force at the Eaton company's mill is now about 250 and the outlook for the immediate future is regarded as considerably brighter than it has been for some time.

Mill Cogs

ON SHORTEST POSSIBLE NOTICE

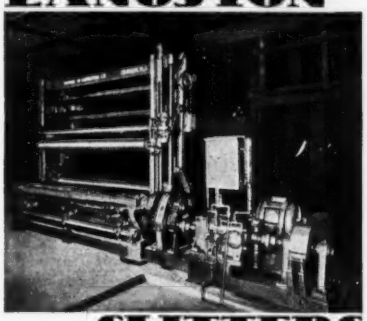
We make all kinds of Mill Cogs and have special facilities that will be of great service to you. We make a specialty of "ready dressed" cogs which are

READY TO RUN

the moment driven and keyed. Write at once for circular "G" and instruction sheets free.

THE N. P. BOWSHER CO.
South Bend, Ind.
Established 1882

LANGSTON SLITTERS

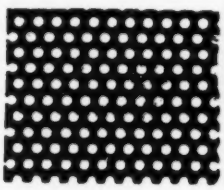


The heavy-duty Langston Slitter can be had in any width, to wind any diameter. Use it as a winder or as a rewinder. Speed up to 3000 feet per minute. Makes rolls of uniform density, square-edged. Langston's Shear-Cut makes no dust—the paper is *clean-cut*, not ground apart. A catalog is yours for the asking.

SAMUEL M. LANGSTON CO., Camden, N. J.

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS
63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Meyers Regulators DO Mesco Regulate

STOCK CONSISTENCY
Merritt Engineering & Sales Co., Inc.
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MARCH REFERENCE—HOBERG PAPER & FIBRE CO.

Experience has taught users of paper-making chemicals that P. M. C. products are uniform and reliable. These qualities are insured by quantity production, by control of raw materials, and by specializing in the manufacture of chemicals for the paper manufacturer.

PMC

SUPERIOR
ROSIN SIZE
SATIN WHITE
INDUSTRIAL
CHEMICALS

PAPER MAKERS CHEMICAL CORPORATION
KALAMAZOO, MICHIGAN
PLANTS IN ALL LARGE PAPER MAKING AREAS

GIANT

RAGS — BURLAP
BAGGING — ROPE
JUTE BUTTS, MAGAZINES, CATALOGS
OLD PAPERS, THREAD WASTE AND
ALL GRADES OF RAGS
CUT QUICKLY AND EFFICIENTLY
WITH THE

TAYLOR, STILES & COMPANY
GIANT
REG. U.S. PAT. OFF.
RIEGELSVILLE, N.J. U.S.A.

This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

THE STANDARD OF THE WORLD FOR 60 YEARS
TAYLOR, STILES & COMPANY
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SCREEN PLATES FOR FLAT SCREENS

Old Plates Reclosed and Re-cut to Accurate Gauge.
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the
UNION-WITHAM SCREEN PLATE VAT AND FASTENER

BLEACH TANK WHITE

Formerly known as DAIRY WHITE.

Use BLEACH TANK WHITE as an inner coating for metal elbows and pipe connections in wood pipe lines. Make unnecessary the replacement of these metal parts with acid resisting steels, also coat the wooden pipe line to stop decay.

Ideal for coating the metal parts of agitators and parts in bleaching tanks, and concrete sulphite tanks.

Send for free sample can—sufficient for coating good-size surface.

SLEIGHT BITUMINOUS PRODUCTS COMPANY
BALTIMORE, MARYLAND

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 1, 1933.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market is only moderately active. Contract shipments are moving in fairly satisfactory volume. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly steady. Domestic standard ground is still quoted at 7 cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 9 cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Some improvement was noticed in the demand for caustic soda. Prices are holding to schedule. Solid caustic soda is quoted at from $2.55 to $2.60; while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The China clay market is fairly active. Shipments against contract are going forward with regularity. Imported china clay is still quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. The contract movement is well up to the average. Prices are holding to previously quoted levels. Chlorine is selling at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is marking time. The grades of gum rosin used in the paper mills are quoted at from $3.55 to $4.00 per 280 pounds, in barrels, at works; while wood rosin is still selling at $2.60 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt sake is fairly persistent. Prices are generally holding to schedule. Salt cake is quoted at from $13 to $14; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Foreign salt cake is selling at from $13 to $14 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are moving regularly. Prices remain unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Most of the business transacted in the starch market during the past week was along routine lines. Prices are steady and unchanged. Special paper making starch is quoted at $2.19 per 100 pounds, in bags; and at $2.46 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Conditions in the sulphate of alumina market are fairly satisfactory. Prices remain unchanged. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Although demand for talc is restricted, the condition of the industry is considered sound. Domestic talc is still quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	4.25	@	5.00
M. F.	3.75	@	4.25
Coated and Enamel	5.00	@	9.00
Lithograph	5.00	@	9.00
Tissues—Per Ream—			
White No. 1	.50	@	.70
White No. 2	.45	@	.60
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.50	@	4.75
No. 2 Domestic	2.75	@	3.00
Southern	2.50	@	2.75
Imported	2.75	@	3.50
Boards—per ton—			
News	30.00	@	32.50
Straw	29.50	@	31.50
Chip	27.50	@	30.00
Binders' Boards	62.00	@	70.00
Kraft Liner	40.00	@	45.00
Standard 85 Test Jute Liner	27.75	@	30.00
Sgl. Mla. Ll. Chip	37.50	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	18.00	@	20.00
Dry	19.00	@	21.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	14.00	@	22.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.80	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.35	@	1.60
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.25	@	1.40
No. 2 Kraft	1.10	@	1.15
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.40	@	1.65
Mitscherlich unbleached	2.00	@	2.25
Kraft (Domestic)	1.25	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.00	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	3.80	@	4.00
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.25	@	4.00
New Unbleached	5.25	@	5.75
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.25	@	1.50
Washables	1.00	@	1.25
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.30	@	1.40
New Mixed Cuttings	1.50	@	1.60
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.50	@	5.00
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	.90	@	1.00
Domestic	1.00	@	1.10
Wool Tares, light	.70	@	.80
Wool Tares, heavy	.70	@	.80
Bright Bagging	.70	@	.75
Small Mixed Rope	.50	@	.60
Manila Rope—			
Foreign	1.35	@	1.40
Domestic	1.40	@	1.50
New Burlap Cut	1.00	@	1.50
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.70	@	1.80
Ordinary Hard White No. 1	1.55	@	1.65
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.35	@	1.45
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.60	@	.70
News—			
No. 1 White News	1.00	@	1.05
Strictly Overissue	.45	@	.50
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.20

H·T
BRAND

COATING CLAY · HIGHEST GRADE FILLING CLAY

The Clay of Uniformity

AMERICAN MADE
for AMERICAN TRADE

Edgar Clays are the Result of more than fifty years' experience in washing clay — used by Leading Paper Mills.

Also Manufacturers of **KLONDYKE BRAND FILLER CLAYS**

EDGAR BROTHERS COMPANY
50 CHURCH STREET NEW YORK CITY

1864 1933

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

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BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisaed Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.10¼	@	.10¾
Fine Tube Rope—			
4-ply	.12¼	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine			
Balls	.09¼	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¾
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¾	@	.05¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07¾
White Tissue	.07¾	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.55	@	.60
Solid Books	.45	@	.50
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.40
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.45	@	.50
Mixed Papers—			
No. 1	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1 50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.40	@	1.45
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.65	@	.70
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.60	@	.65
Print Manila	.40	@	.45
Container Manila	.35	@	.40
Old Kraft	.85	@	.90
Common Paper	.17½	@	.25
No. 1 Mixed Paper	.20	@	.30
Straw Board, Chip	.20	@	.30
Binders Board Chip	.20	@	.30
Corrugated Board	.35	@	.45
Overissue News	.45	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02½

(F. o. b. Boston)

Southern Kraft	.02½	@	—

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	—	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.25	@	1.40
No. 1 Old Manila	.50	@	.60
No. 1 Mixed	.60	@	.70
No. 2 Mixed	.40	@	.50
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.60
White Blank News	.85	@	.95
No. 1 Kraft	.70	@	.75
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.27½	@	.32½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.25
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	.85
Domestic	.60	@	.70
Manila Rope—			
Foreign	—	@	1.37½
Domestic	—	@	1.60
Transmission Rope	—	@	.90
Mixed Strings	.25	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.10
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.50	@	.75
No. 1 Scrap Burlap	.65	@	.75
Scrap Sisal	.80	@	—
Scrap Sisal for shredding	—	@	.90
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	1.75	@	2.00
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.30	@	.35
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.75	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01¼
New White No. 1	—	@	.03½
New White No. 2	.02¾	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	—	@	.04½
Fancy	—	@	.02½
Washable	—	@	.01½
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03¾
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	1.50	@	1.75
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F.O.B. Cars Toronto)
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.09¾	@	—
No. 2 Sulphite	.07½	@	—
No. 1 Colored	.09¼	@	—
No. 2 Colored	.08½	@	.10½
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	10.00	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.00	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—
News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

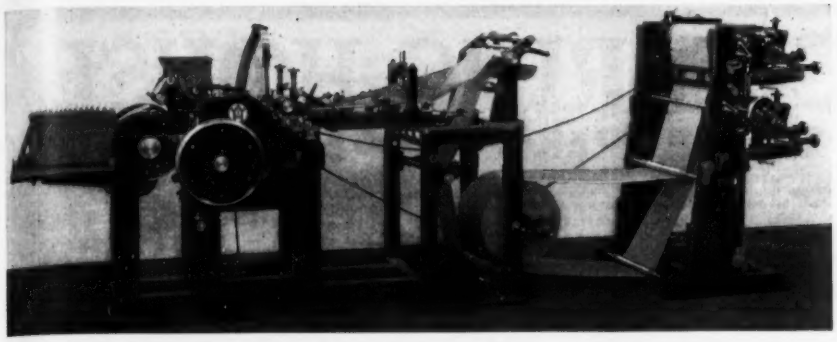
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.25	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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Makes up to 700 bags per minute, flat or square, plain or PRINTED in 1, 2, or 3 colors, as required. Widths from 1¾ to 7 inches. Tube lengths from 4 to 11 inches. This machine is a profit earner. It is made by WINDMOLLER & HOLSCHER, which means that it is thoroughly well built and dependable in every way.

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Arthur D. Little, Inc.

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are good wires

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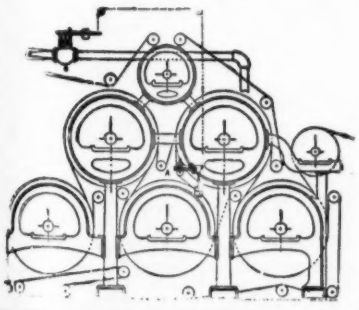

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Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information

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IF YOU are open to overtures for new connections and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements, your identity covered and present position protected. Established twenty-three years. Send only name and address for details. R. W. Bixby, Inc., 117 Delward Bldg., Buffalo, New York.

WANTED—BOSS BEATERMAN, experienced on folding and set-up box boards; State experience, age and give references. Address Box 33-77 care Paper Trade Journal. M-9

WANTED—Machine tenders and Back tenders, thoroughly experienced on Kraft paper. Mill located in New York State. Address Box 33-93, care Paper Trade Journal. M-2

WANTED—All around paper mill machinist. Steady work for the right man. References required. Address Box 33-100, care Paper Trade Journal. M-9

SITUATIONS WANTED

WORKING Master Mechanic. Sober, Steady. Conscientious. First class paper mill mechanic. 24 years practical experience, construction maintenance. References. Address Box 33-78, care Paper Trade Journal. M-2

GRADUATE Chemical Engineer. Eight years experience in production management. Eight years experience in research and development. Qualified to prosecute a line of research, develop the manufacture and manage the production. Experienced in manufacture of transparent viscose film, transparentized glassine, lacquered and varnished papers, oil and grease proof paper and cartoboard for packaging foods of that nature. Address Box 33-80, care Paper Trade Journal. M-16

MECHANICAL ENGINEERING DRAFTSMAN, or master mechanic. Several years of paper mill and paper machinery design and rebuilding. Trustworthy, energetic and competent. References. Address Box 33-99, care Paper Trade Journal. M-9

GLASSINE GREASEPROOF

SUPERINTENDENT, TWENTY YEARS EXPERIENCE MANUFACTURING ALL GRADES OF GLASSINE, EMBOSSED GLASSINE, GREASEPROOF AND SULPHITE MANIFOLDS.

SPECIALIZING IN SUPER-TRANSPARENT AND GREASE RESISTING PAPERS.

GUARANTEE MAXIMUM PRODUCTION.

MINIMIZE PRODUCTION COSTS.

IMPROVE MILL EFFICIENCY AND QUALITY OF YOUR PRODUCT.

AVAILABLE AFTER APRIL 1ST.

BEST OF REFERENCES.

Address Box 33-56, care Paper Trade Journal M-2

SITUATIONS WANTED

SECRETARY, STENOGRAPHER and TYPIST. Seven years experience in Paper Mill Sales Office. Best references furnished. Metropolitan District preferred. Address Box 33-86, care Paper Trade Journal. M-9

SUPERINTENDENT—Technical and practical. Thirteen years in laboratory, sulphite and paper mill with practical experience in each. Graduate chemical engineer with patentable ideas. Knowledge of standard cooking processes and specialty requirements on all machines. Wide experience. Employed. Address Box 33-89, care Paper Trade Journal. M-9

PLANT MAINTENANCE ENGINEER—Technical graduate, thorough mechanic, exceptional experience erecting, rebuilding, trouble engineer, check of designs with leading manufacturer of paper machines. Good organizer of maintenance crew. Address Box 33-88, care Paper Trade Journal. M-2

SUCCESSFUL SUPERINTENDENT of folding and set-up boxboard mill, wishes new connection. Capable and has thorough knowledge of all mill operations. Unquestionable references. Address Box 33-87, care Paper Trade Journal. A-27

MASTER MECHANIC in charge of Steam, Electrical and Mechnical Work wants position. 18 years experience, Maintenance, Construction, operation and hydro-electric plant operation. Address Box 33-90, care Paper Trade Journal. M-16

COATING MILLS—How can you use this man? At present in charge of mill with personal contact in the making of Brush Finish, Dull Finish Satin White color, Litho, Enamel, White Glaze, Bond and other Coated Papers. Both single and double coaters, 32 years experience manufacturing and selling. Will consider either the development of new territory along selling lines, or the management of a mill, or a combination of both. Address Box 33-91, care Paper Trade Journal. M-16

SALESMAN—Age 34, married, with family. Over ten years experience selling toilet tissues, towels, bags wrappings, boards etc. to jobbers and larger consuming trade throughout Michigan, Ohio, Indiana and Illinois. Well acquainted. Willing travel or locate large city anywhere. At present not connected. References. Address Box 33-92, care Paper Trade Journal. M-16

BOSS FINISHER and shipping clerk. Efficient in handling help, wants position. Familiar with all grades of boxboard and paper. Also Cutters and Rewinders. Reliable references. Address Box 33-71, care Paper Trade Journal. M-2

BEATERMAN wants position. Accustomed to mostly all grades rag or wood stock. Earl Davis, 515 East Walnut St., Kalamazoo, Mich. M-9

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to advertisements appearing under Box Numbers in care of

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New York, N. Y.

SITUATIONS WANTED

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SUPERINTENDENT or boss machine tender wants position. Can rebuild machines to meet requirements. 18 years experience on tissues and specialties. Best of references. Address Box 33-70, care Paper Trade Journal. M-2

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MANUFACTURER interested in producing and marketing paper products and paper specialties. Write furnishing specimen samples or describing product in detail also any information regarding market and development. If product seems to have sufficient possibilities appointment will be arranged. Address Box 33-98, care Paper Trade Journal. M-2

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WANTED—Calender rolls 120" to 150" face, or complete calender stack seven to nine rolls, same face. Address Box 33-94, care Paper Trade Journal. M-9

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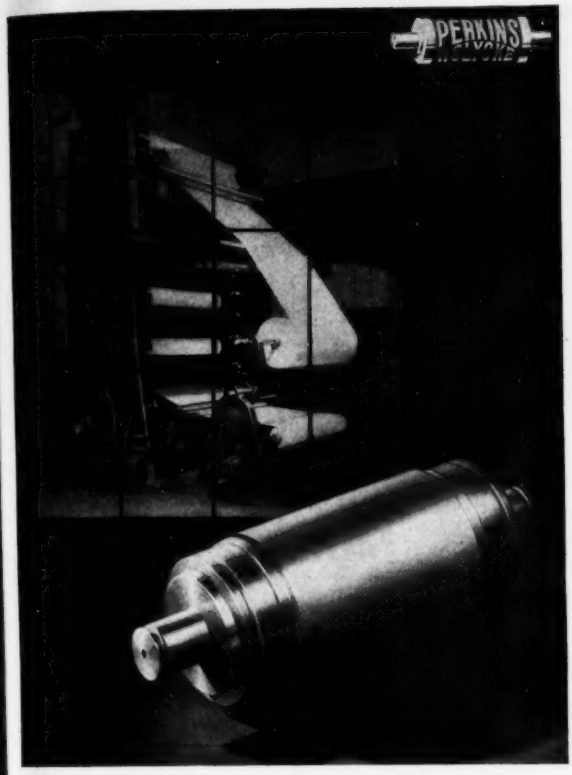

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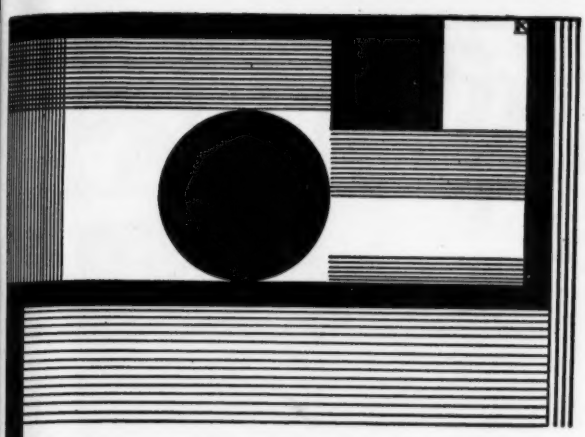

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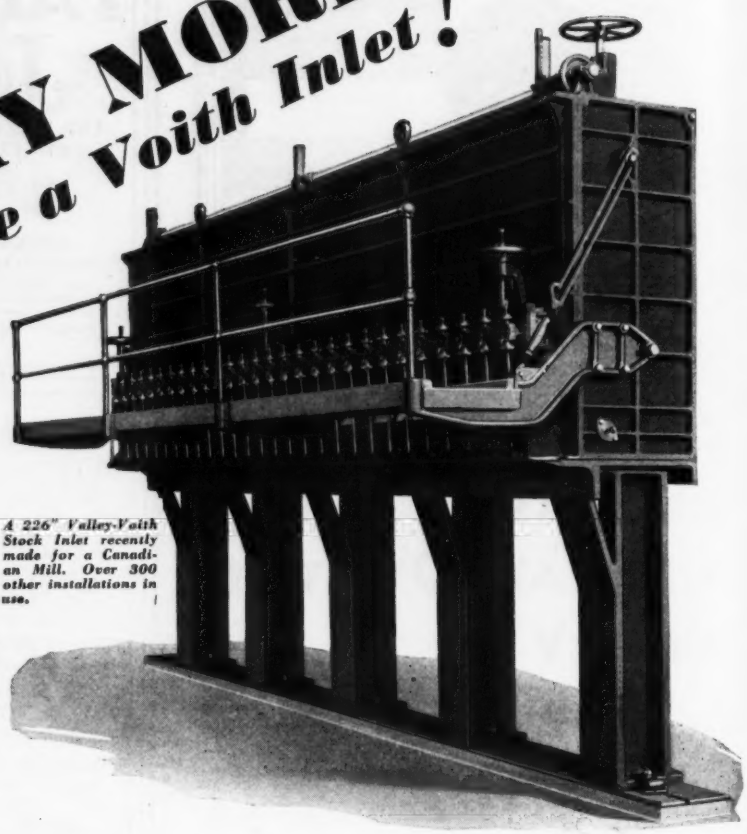
WHY PAY MORE — not to have a Voith Inlet!



A 226" Valley-Voith Stock Inlet recently made for a Canadian Mill. Over 300 other installations in use.

IF the Voith Inlet can show you a definite saving over and above the amortized cost of installation, including interest on the investment, IT IS CERTAINLY POOR BUSINESS TO SACRIFICE THE BENEFITS THE MACHINE CAN OFFER!

For example:

1 *A typical installation of the Voith Inlet conservatively allows the machine to be speeded-up about 20%, thereby substantially reducing labor cost per ton of output.*

2 *Formation has invariably been improved after the installation of a Voith Inlet.*

3 *There is also a very conservative saving in wires of approximately 15%. We have had cases where the Voith Inlet has increased the life of wires from 17 days before installation to 30 days after installation.*

4 *Greater uniformity. One mill reduced caliper variation from 30% to 5% with a Voith installation.*

During the past several years the Voith High Pressure Stock Inlet has been considerably redesigned and improved—one of the outstanding advances being the new micrometer adjustment. If your Voith is not the newest type, it can be brought up-to-date at nominal cost.

Voith Inlets can be installed on either large or small paper machines, including Yankee Harper or Fourdrinier type, and are used on nearly every kind of paper stock.

Write us for detailed information regarding your present installation, including special recommendations, technical data, production facts, quotations, estimates on repairs, etc.

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